

THE JOURNAL OF MEDICAL EDUCATION

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THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES



SEPTEMBER 1956 • VOLUME 31 • NUMBER 9
IN TWO PARTS—PART I

- The Fifth National Intern Matching Program.....*McJoynt, Crosby*
Preceptors as General Educators in Medicine.....*W. Clarke Wescoe*
Trends in Medical Education and the Opportunity
of the University of Puerto Rico.....*John B. Grant*
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Table of Contents

VOL. 31

SEPTEMBER 1956

No. 9

ARTICLES

- The Fifth National Intern Matching Program
—Joan R. McJoynt and Edwin L. Crosby..... 591

- Preceptors as General Educators in Medicine
—W. Clarke Wescoe..... 598

- Trends in Medical Education and the Opportunity
of the University of Puerto Rico
—John B. Grant..... 605

- An Orientation for Instruction in Pediatrics
—Milton J. E. Senn..... 613

- Edinburgh University General Practice Teaching
Unit
—Richard Scott..... 621

- The Selection of Medical Students
—Sir Lionel Whitby..... 635

- EDITORIALS AND COMMENTS..... 642

- NEWS DIGEST..... 646

- College Briefs..... 648

- AUDIOVISUAL NEWS..... 651

- BOOK REVIEWS..... 666

- PERSONNEL EXCHANGE..... 671

- Association Officers, Staff, Committees..... V

- Calendar of Meetings..... X

- Advertisers Index..... X

II

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Index to Advertisers

American Optical Co.	665	National Dairy Council	657
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Bausch & Lomb	659	Ortho	between VIII and IX
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Borchardt Malt Extract Co.	VIII	Schering Corp.	VI
Burroughs Wellcome & Co.	IV, XI	Smith, Kline & French	IX
Hoffman-LaRoche	655	Taylor Instrument Co.	662-663
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P. S. Lakeside Laboratories specializes in the synthesis of new and distinctive compounds designed for "tomorrow's" therapy of cardiorenal, gastrointestinal, ventilatory and other disorders.

*The American Foundation: Medical Research:
A Midcentury Survey, Boston, Little, Brown
and Company, 1955, vol. 1, p. XXXI.

**Ibid., p. 600.

The Fifth National Intern Matching Program

JOAN R. MCJOYNT AND EDWIN L. CROSBY

THE NATIONAL INTERN MATCHING PROGRAM enjoys the enviable record of having conducted matching for 31,660 students with no reported errors. Since its inception five years ago, it has received increasing support from both students and hospitals. Each year more and more applications are processed as participants make increased use of the program's advantages.

People most closely concerned with the technical aspects of matching felt that Program V was the smoothest operation yet experienced. There are several reasons for this reaction: (1) The IBM operating procedure is well established and ease of operation increases with each program; (2) As hospitals become increasingly familiar with the program, data received from them is clearly presented and changes are kept to a minimum; (3) Through instructions in NIMP publications and the continued co-operation of medical schools and the Student American Medical Association, original student information is accurate and easily processed.

Mechanics

The mechanics of matching, though

somewhat involved, are carried out with a great degree of care and accuracy despite time pressures during the crucial period of data preparation. Full understanding of this process will serve both hospitals and students alike in utilizing this process which is designed for their benefit. Each participating hospital submits to the NIMP office a list showing all students who applied to it for an internship and ranks each student, 1-2-3-etc., from most to least desirable. Each student submits a similar list showing all hospitals to which he has applied and ranks them 1-2-3-etc. according to preference. (Both parties have the option of indicating a student or hospital they will not accept by the rank "X." Under no circumstances will a matching occur if either party has been ranked "X.")

Each item on these lists received by the NIMP is entered into a punched card. This punched card recording is confirmed to the originator. Between January 16 and February 16 close to 60,000 rankings were recorded and confirmed to hospitals and students. To achieve this, IBM machines and the NIMP staff processed and checked 3,000 items a day. For an entire month choices were being confirmed at the rate of one every 10 seconds!

Miss McJoynt is Secretary of the NIMP. Dr. Crosby is Chairman of the NIMP.

The Fifth National Intern Matching Program

In addition to this regular confirmation, over 200 changes were requested by hospitals while more than 600 change requests were received from students. Each change was subject to the same rigid checking and verification as original lists. When a student requests a change in his ranking list, the appropriate corrections are made and the entire list is reconfirmed to the student. Thus 600 student changes meant an additional 3,000 items to be checked and reconfirmed. Every request for a change received by the NIMP office was made and a printed confirmation copy sent to the originator. The confirmation procedure is the heart of the matching program. It guarantees that the NIMP office worked with correct data and that the matching was based on accurate rankings of hospitals and students.

Matching began February 23

On February 23 the actual matching operation began. IBM machines analyzed student and hospital choices and internship quotas. The machines do not "think" but give effect, at a phenomenal rate of speed, to the matching rules established by NIMP member organizations. Each cycle matches permanently—or eliminates—more and more cases. Each cycle in the process was subject to two checks. When the machines completed their first operation, the results were printed. This printed recording was checked by clerks who actually worked the problem in reverse to verify the results. At the same time a similar check was made by the machines. Only after the clerical staff reported 100 per cent accuracy and the machine check was completed did the matching move to the second cycle. Step two was verified by the same process before step

three began, etc.

Thus for 10 days the IBM machines hummed 12 hours daily while eight to ten clerks verified that they were "humming" correctly. The result gave each student the highest choice hospital on his list that had a place for him and gave hospitals the students they preferred and who in turn had rated them higher than any other hospital.

The machine operation was completed March 3. Prior to mailing results from Chicago on March 8, each matching was subject to a final check. Each student's records were audited to verify that if he received his first choice, it was his first preference according to his latest confirmation. If a student did not receive his first choice, all choices more preferable were checked to verify that either (a) the hospital ranked him: "X" (did not want the student) or (b) the hospital quota was filled with men the hospital preferred more.

Hospital results were similarly checked. If a hospital filled its quota, an audit was made to guarantee that the hospital received the men it ranked highest who also preferred that hospital and that no student was "by-passed" by a lower man on the hospital list. If a hospital did not receive a full quota of interns, a check was made of the hospital's applicants to verify that those not matched to the hospital, preferred and were matched to other hospitals.

Upon completion of these checks, lists were prepared showing all results. Hospitals received lists indicating the name and medical school of each student with whom they were matched. The dean of each medical school received a list of all his students who participated in the program showing the results of their matching. In addition, he received a

TABLE 1
General Results 1952-56

Year	Hospitals participating	Intern Programs offered	Total positions offered	Total positions filled	Per Cent filled	Number unfilled positions	Students participating	Students unmatched
1952	795	1068	10414	5564	53%	4850	5681	117
1953	808	1102	10971	5744	52%	5227	6033	289
1954	820	1032	10729	6051	56%	4678	6412	361
1955	814	1056	11075	6379	58%	4696	6713	334
1956	821	1063	11459	6588	57%	4871	6821	233

statistical analysis of the number of his students who received their first, second, etc., choices. This was a general, not an individual summary as no ranking is ever revealed by the NIMP office.

Students received individual notices stating the hospital and type of internship to which they had been matched. At the same time, the results of the matching in terms of number of students sought and received by each hospital, were sent to deans, hospitals and unmatched students.

Five years completed

The five-year general results of the matching program shown in Table 1, indicate a steady upward trend in participation and positions offered. This year the number of students available did not rise proportionately with the number of positions offered, resulting in a slight decrease in the per cent of positions

filled through the program. The number of unmatched students in Program V is the lowest since 1952.

This figure and those in Tables 2 and 3 are a gauge to student reaction to the program. In the early years of operation, students were not making the best use of the program. They applied only to "sure things" as evidenced by the small number of unmatched students and the large per cent receiving their first choice (Table 2). In 1955 statistics indicate that students began to take "flyers" on their first choice hospitals knowing they would not harm their chances at their second choice. The per cent of students getting their hospital of first choice therefore dropped. Coupled with this was a drop in unmatched students as participants compensated for the "flyers" at one end by increasing their total number of applications. The fifth program shows an even better balance being established. The low number of unmatched students is

TABLE 2
Percentage of Students Matched by Order of Choice

Year	Per Cent First choice	Per Cent Second choice	Per Cent Third choice	Per Cent Fourth choice or lower
1952	84	10	3	3
1953	85	10	3	2
1954	82	11	4	3
1955	76	14	5	5
1956	74	15	6	5

TABLE 3
Application Per Student

Year	Number of Students	Number of Applications	Number Per Student
1952	5681	21728	3.8
1953	6033	19416	3.2
1954	6412	21579	3.4
1955	6713	25617	3.8
1956	6821	29474	4.3

TABLE 4
**Number of Applications Made by Students
by Type of Hospital**

Type*	No. Applications	No. Positions	Ratio Applicants/Positions
Major Teaching	17451	4273	4.1
Minor Teaching	1325	745	1.8
Unaffiliated	8943	5859	1.5
Federal Services	1755	582	3.0
Total	29474	11459	2.6 (overall average)

*Categories as indicated in Internship and Residency Number of the JAMA, September 1955.

TABLE 5
Hospitals Ranking of Students With Whom They Were Matched

Year	Per Cent Matched from Rank Group I*	Per Cent Matched from Rank Group II	Per Cent Matched from Rank Group III	Per Cent Other	Total
1952	74	18	6	2	100
1954	71	21	6	2	100
1956	61	24	11	4	100

*If hospital quota is 10, first ten men on list form Rank Group I, numbers 11-20 Rank Group II, etc.

TABLE 6
Students Matched Classified by Stipend Obtained

Amount of Stipend*	1955		1956	
	Number matched	Per Cent of total	Number matched	Per Cent of total
0- 50	1376	21	1307	20
51-100	1876	29	1945	30
101-200	1827	29	2186	33
201-up	488	8	543	8
No information	257	4	69	1
Federal services	255	9	538	8
Totals	6379	100	6588	100

*Based on cash stipend as reported by the AMA.

no longer a result of "sure thing" applications. The tendency to take "flyers" continues, as evidenced by an additional drop in first choice percentages and a decided rise in the number of applications made by each student (Table 3). Further support of this is seen in the fact that despite the decrease in the number of students receiving their first choices, 95 per cent continue to receive one of their first three preferences.

In spite of the discrepancy between total positions offered and students available, competition among students continues for certain internships. Table 4 indicates that only one in four applications to major teaching hospitals and one in three to Federal Services will result in a match. Students are shopping. Hospitals are aware that the matching plan protects their lower choices, and they, too, are able to take "flyers" on students whom they feel they have little chance to get. They are not penalized for giving high rankings to popular students. This practice by the hospitals is seen in the drop of Rank Group I matches. (Table 5). This does not mean hospitals are getting less desirable students. Rather it reflects the trend of even top students to make more applications and hospitals to give them high rankings as their confidence in the program increases.

Table 6 shows the general results of students matched in relation to stipend received. Table 7 presents a detailed picture of the success hospitals had in filling positions according to stipend offered. While Federal Services are listed as a separate group, these internships should be considered with the hospitals providing a stipend of \$201 and upwards.

Table 8 shows the distribution of

matched students among major and minor teaching and nonaffiliated hospitals. Students continue to cluster in major teaching hospitals.

Table 9 shows the success hospitals had in filling positions in relation to number of positions offered.

These tables present just some of the statistics available on the patterns of internship distribution which are a direct "by-product" of the matching operation.

The excellent cooperation of medical schools, hospitals and students has been the greatest single factor in the success of the matching plan. NIMP gratefully acknowledges this cooperation and looks forward to being of continued assistance in enabling hospitals and students to emphasize the educational rather than mechanical aspects of selecting and securing internships.

* * *

Método de selección de los internos de hospital

En este trabajo se describe con detalle un procedimiento semimecánico (con ayuda de las máquinas "IBM", de computación) que facilita considerablemente la tarea de proveer a los hospitales con estudiantes internos. Este método, aplicado nacionalmente, está funcionando desde hace 5 años y ha dado hasta ahora buenos resultados: 31,660 estudiantes fueron seleccionados para su período de práctica enviándoles al hospital por ellos preferido, cuando esta preferencia coincidía con la selección de estudiantes hecha por los hospitales respectivos. Ningún error en este sistema de acoplamiento ha sido descubierto hasta ahora, aunque, naturalmente, la coincidencia en las selecciones (de hospitales por los estudiantes y de estudiantes por los hospitales) es más frecuente en las categorías más bajas.

* * *

Separatas de este artículo, en español, podrán obtenerse si son solicitadas un mínimo de 25 lectores.

TABLE 7
Hospitals Classified by Stipend Offered and Percentage Filled

Amount of Stipend	100%			67 - 99%			50 - 66%			34 - 49%		
	Hosp.	Sought	Matched	Hosp.	Sought	Matched	Hosp.	Sought	Matched	Hosp.	Sought	Matched
\$0 - 25	5	152	152	12	563	472	3	85	47	1	32	14
26 - 50	16	338	338	6	181	160	1	52	29	5	170	71
51 - 75	20	395	395	13	593	532	6	91	53	6	112	48
76 - 100	20	366	366	16	337	285	11	214	125	4	37	15
101 - 150	31	486	486	26	464	385	14	210	123	11	177	77
151 - 200	19	293	293	34	432	344	22	307	178	17	204	82
201 - 250	11	94	94	17	201	165	8	116	71	5	65	26
251 - 300	7	89	89	2	23	20	3	27	15	1	20	9
Not Stated	2	58	58	1	7	6	1	4	2	1	8	3
Fed. Service	6	500	500	—	—	—	1	30	19	1	30	13
Total	137	2771	2771	127	2801	2369	70	1136	662	52	855	358

Amount of Stipend	1 - 33%			0%			Totals		
	Hosp.	Sought	Matched	Hosp.	Sought	Matched	Hosp.	Sought	Matched
\$0 - 25	2	30	3	3	26	—	26	688	688
26 - 50	6	81	21	22	216	—	56	1038	619
51 - 75	13	231	39	56	403	—	114	1825	1067
76 - 100	35	451	87	91	580	—	177	1985	878
101 - 150	56	587	117	52	340	—	190	2264	1188
151 - 200	52	537	101	17	115	—	161	1888	998
201 - 250	20	220	46	3	15	—	64	711	402
251 - 300	5	42	8	—	—	—	18	201	141
Not Stated	—	—	—	—	—	—	5	77	69
Fed. Service	2	22	6	—	—	—	10	582	538
Total	191	2201	428	244	1695	0	821	11459	6588

TABLE 8
The Percentage of Interns Sought Who Were Obtained for Major Teaching Hospitals, Minor Teaching Hospitals, and Nonaffiliated Hospitals*

Per Cent Filled	Major Teaching			Minor Teaching			Nonaffiliated			Total		
	Hosp.	Sought	Matched	Hosp.	Sought	Matched	Hosp.	Sought	Matched	Hosp.	Sought	Matched
100%	53	1269	1269	10	108	108	74	1374	1374	137	2771	2771
67 - 99%	43	1744	1499	13	157	133	71	900	737	127	2801	2369
50 - 66%	20	559	336	7	88	50	43	489	276	70	1136	642
34 - 49%	11	300	127	6	89	38	35	466	193	52	855	358
1 - 33%	22	330	78	15	171	41	154	1700	309	191	2201	428
None	4	51	—	17	132	—	223	1512	—	244	1695	—
Total	153	4273	3329	68	745	370	600	6441	2889	821	11459	6588

*Categories as indicated in Internship and Residency Number of the JAMA, September 1955. For matching program purposes the Army, Navy, Air Force and Public Health Services are each treated as units and as unaffiliated.

TABLE 9
Number of Hospitals Classified by Percentage Filled
and Total Number of Positions Offered

Number sought	Per Cent Filled						Total
	100%	67 - 99%	50 - 66%	34 - 49%	1 - 33%	0%	
1 - 9	37	21	23	13	80	198	372
10 - 19	61	67	35	25	95	45	328
20 - 29	9	14	1	6	10	1	41
30 - 39	19	8	7	6	4	—	14
40 - 49	5	8	—	2	2	—	17
50 - up	6	9	4	—	—	—	19
Total	137	127	70	52	191	244	821

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Preceptors as General Educators in Medicine

W. CLARKE WESCOE

SINCE 1950 the University of Kansas School of Medicine has engaged in a preceptorship program as a means for providing a period of comprehensive general education in medicine. For this program, the University of Kansas lays no claim to originality; it is quite probable that other schools which have had preceptorship programs for a longer period of time are better prepared to write about them.

Before our Kansas program was instituted, conversations were held with representatives from the medical schools of the University of Oklahoma and the University of Wisconsin. Parts of our present preceptorship program were derived from theirs; some new parts have been added.

Purpose of the program

It is the purpose of the preceptorship program to present to the medical student the broadest aspects of the practice of medicine, aspects that cannot well be shown him within the walls of a complex and specialized teaching institution. The program is designed specifically not to teach the general practice of medicine. Rather it is designed to demonstrate a medical way of life.

There are many facets of the practice of medicine which cannot be adequately presented in formal classroom and laboratory sessions. These aspects of the practice of medicine are, nonetheless, exceedingly important; indeed, they equal in importance the thoroughgoing scientific training that is the rule in American medical education. By providing the opportunity for a student in his fourth year of medical study to live, work and study with a man who is in the active general practice of medicine, we find it possible to teach some of these factors that in the past have been almost entirely neglected.

As an illustration, our young men who spend time with preceptors gain an appreciation of the civic and social responsibilities of the practicing physician. They attend, with the preceptor, meetings of local service clubs and Chambers of Commerce and thereby gain knowledge of the responsibilities that the physician carries in his community. Many of the young men have their first opportunity to attend the meetings of a county medical society, thus to see the basic unit of organized medicine in action. In this manner the students become well aware that the physician is not a member of an isolated practicing profession, existing in a vacuum, but a highly respected member of a generalized community

Dr. Wescoe is dean of the medical school and director of the Medical Center of the University of Kansas.

made up of many people with diverse interests.

In addition, during his preceptorship the fourth year medical student is made acquainted for perhaps the first time with the business aspects of the practice of medicine. Office management and medical economics become a part of his daily life. The preceptor acquaints him with his bookkeeping; he indicates to the student his method of collection of charges from patients and the method of, and reasons for, establishing such charges. The cost of medical equipment and the charges for rent on the ordinary medical office are discussed. In this way the preceptor acquaints his student with the facts of medical economics and the necessity for keeping accurate records. The reasons for the keeping of accurate records are discussed, not the least of which are to satisfy tax accountants.

During the course of the preceptorship the medical student is made well aware of the ethical relationships that exist between a physician and other physicians, and between a physician and his patient or patients. The mechanism and niceties of referral of a patient from one physician to another are brought home to him and the necessity for keeping absolutely secure the confidences of the patient to the physician is also made apparent to him.

Additionally, the medical student has an opportunity to observe how the practicing physician plans the continuation of his education beyond the medical school years. He observes how his preceptor maintains his library and keeps abreast of recent advances in medicine. He is made aware also of the fact that the preceptor attends some formal post-graduate courses each year and enters into discussions concerning the reasons for attending certain courses.

The primary purpose of the preceptorship program, however, is to teach a philosophic approach to the practice of medicine. The student, removed from the sometimes synthetic atmosphere of the large medical center, where often he considers himself a small unit in a very large machine devoted to the grinding out of diagnoses and treatments, is transferred to the real situation where he becomes a very large part in a comparatively small operation. In contrast to his intramural experience he sees patients and, most importantly, he sees them in their own everyday environment. He sees every patient in a general medical practice, not those who are selected for him by an instructor because they are considered ideal for educational purposes. He sees patients of every conceivable type and from every conceivable economic circumstance. In this way he learns the scope and the pace of the practice of medicine. He learns, perhaps for the first time, that the patient is interested not in a diagnosis but in the obtaining of help.

Because he is involved in community life, the student is enabled to observe his patients in the pursuit of their daily activities. He meets them on the street, he meets them in stores, he meets them again in civic meetings. Thus, he gains the appreciation that the practice of medicine continues beyond the office and that the busy practicing physician has many opportunities to follow the progress of his patient's care.

Method of operation

The mechanics of operation of the preceptorship system are very simple; we have attempted to keep them as uncomplicated as possible. At present the system is administered by a committee of four operating directly

from the dean's office. The committee consists of three members of the full-time faculty (two internists and one general practitioner) and one active preceptor who has been engaged in the program since its inception.

In order that the medical student might benefit from the closest relationships existing between patients and physicians, the program was instituted in towns whose populations are not larger than 2,500. This selection of community had a two-fold purpose: to allow, for obvious educational reasons, a close personal rapport between the student and the patient and a close personal relationship between the student and his teacher; and further, to reveal to the student the gratifications that result from practice in relatively rural areas, thereby encouraging suitable young physicians to establish such practices, which we need desperately.

Preceptors are selected after careful screening, by the committee. The rule has been established that only physicians in the private practice of medicine, or at the most in a partnership of two, will be considered. From the very beginning the group or clinic practice of medicine, such as exists in the medical school, has been removed from consideration. Each preceptor after his selection is given a faculty appointment as "Preceptor in Medicine." There are now 70 physicians who are preceptors of the university.

Each preceptor is encouraged to adopt and develop his own style of teaching, compatible with his own personality as well as with that of the student. An attempt is made to keep the program individualized. The preceptors accept the students as colleagues. Personal and professional reasons usually make it desirable for the preceptor to call the student "Doctor," but no attempt is made to

obscure the fact that he is a "student doctor." To the contrary, patients understand that these are medical students in their midst to study medicine, that they are students of the university under the guidance of "off-campus" faculty members.

The duration of the preceptorship has presented us with a problem. The curriculum is already crowded, having grown through a process of constant accretion rather than through a process of judicious addition and deletion. We have now settled, after a period of experimentation, upon a preceptorship of four and one-half weeks duration (one-half of an academic quarter) in the fourth school year. (The preceptorship has been restricted to the last medical school year because we feel a program of this type requires a certain maturity and ability to accept responsibility found only in the advanced student.) This period is sufficient, in our experience, to indoctrinate the student and to allow him to gain insight into the practice of medicine. The period is long enough for the purposes intended and yet not long enough to allow the student to become so expert and well-known in the community that he tends to relieve his preceptor of responsibility or to become cheap help for his teacher.

The ground rules of the preceptorship are also simple. The preceptee is expected to make all calls with his preceptor, to participate in hospital rounds, to take an active part in office routine, to be in constant attendance upon the patients with his preceptor. After a period of orientation, the student is given definite responsibility for patient care; such responsibility is increased as circumstances warrant, but the student is never allowed to practice medicine without his preceptor's supervision. The student is not per-

mitted to act as a clinical clerk in the local hospital or as an assistant for other physicians in the neighborhood. He is required to do a certain amount of laboratory work in connection with patient care, but he is not relegated to the position of being a supplement to the preceptor's office staff.

The preceptor provides maintenance (room, board, laundry) for the preceptee during the period of the preceptorship. In most cases it is possible for the student to live in the home of the preceptor as a member of the family. When this is not possible, the preceptor makes arrangements for the preceptee to live in a local home, hospital or hotel at the preceptor's expense. Whatever the arrangement may be, the student is always close enough so that he may accompany his preceptor on all of his medical errands. Some preceptors find it convenient for married students to bring their wives for the period and encourage them to do so. The student, in turn, is financially responsible for his travel to and from the site of his preceptorship. Under no circumstances are salaries paid and an interdiction is made against the transfer of gifts between the two parties.

Three or four times each year members of the Preceptor Committee make field trips for a continuing evaluation of the program. These field trips last approximately one week; by this mechanism each of the preceptors is visited, while he has a preceptee, at least once in every three-year period. Additionally, an annual meeting of all preceptors is held at the medical school at some time during the academic year.

At the conclusion of a student's preceptorship, two reports are returned to the dean's office. One comes

from the preceptor; one comes from the preceptee. The preceptor reports on the same card that is used for evaluation of student performance within the medical school. This card asks for information relative to the student's fund of information, his comprehension of medical problems, and his problem-solving ability. In addition, it calls for a report on the overall performance of the preceptee as well as an evaluation of his character (ethical standards, rapport with patients, interpersonal relations). The student's report consists of two main categories: the first, the quality of his experience; the second, the quantity of his experience. Under the quality of experience, the preceptee reports about the medical practice of his preceptor, including in this an estimation of the preceptor's teaching ability. Under the quantity of experience, the student records a census of the patients that he has seen according to type of illness, and the number of patients that have been seen. This latter statistical evaluation of the preceptorship program has benefited the university by providing, unexpectedly, some hitherto unknown figures concerning the scope of the general practice of medicine in Kansas communities.

Results of the program

The results of the preceptorship program have been even better than the medical school had a right to expect at its inception. It is now considered by all parties—students, preceptors, the medical profession, the medical faculty—to be an unqualified success.

It is quite apparent that the success of the program depends almost entirely upon the caliber and interest of the preceptor. If the preceptor lacks enthusiasm for the pro-

gram, if he lacks interest in teaching, then the program cannot possibly be a success. For this reason the preceptors have been constantly re-evaluated and changes have been made each year in the complement.

From the standpoint of the student, the preceptorship program has provided definite results. It has been our experience that during the preceptorship period, albeit a short one, the student matures medically. He returns to the medical school with a greater fund of information concerning the practice of medicine and a deeper appreciation of the problems of the practice of medicine than he had prior to this experience. Some of the students, of course, are completely satisfied with the program and decide that this is the type of practice that will interest them permanently. Others, of course, who appreciate the preceptorship program and find it a valuable experience, decide against the practice of medicine of this nature. Their reasons for so deciding are many. No matter what these reasons may be, we feel that future difficulties for the student are thus avoided. The student has seen the general practice of medicine; he has decided that he does not like it and he can take up some other aspect of the practice of medicine without regret or misgiving.

The preceptorship program has improved interpersonal relations between physicians and, in particular, it has made apparent to the medical student the difficulties and the challenges that face the practitioner in a small community. The term "local medical doctor", which is sometimes used with tinges of sarcasm in our clinical records in teaching hospitals, assumes a different meaning for the medical student. The medical student has seen what it means to be on the firing line in

medicine constantly and daily. He appreciates that the patients who are referred to a medical center are referred not in desperation but because the local physician desires help not only for his patient but for himself.

An interesting corollary result of the preceptorship program has been an undeniable elevation of the practice of medicine in the state of Kansas. The preceptors who are scattered throughout the state have appreciated their responsibility as general educators. Their students have provided stimulation for them. Many of their colleagues who are not preceptors, desiring to become members of the preceptorship panel, increase the pace of their postgraduate training. In the last analysis, patient care in Kansas has improved considerably.

It is the purpose of the University of Kansas School of Medicine to produce competent physicians, physicians for all types of medical careers. Included among these careers is, of course, the general practice of medicine. The preceptorship program appears to be the best possible method for demonstrating this particular type of practice to the medical student.

Our own state has a problem in the distribution of physicians in that physicians tend to locate in larger communities, thereby leaving rural communities either in short supply of medical service or without supply at all. One of the results of our preceptorship program has been to aid in the redistribution of physicians. The results have been dramatic. There is now not one of our 105 counties that is without the services of a physician. There is at the present time no community with a population of 1,000 or more that is without a physician. Further, there are towns of less than 1,000 population

which have the services of not one but several physicians. The trend from rural to urban practices has been reversed in the state of Kansas. There are now more physicians in practice in rural areas than there were five years ago.

The program has been enthusiastically commended by the students, by the faculty, by the preceptors, and by the medical profession in general. The student group, which at first was rather resistant to the idea of a preceptorship program, has now become its most strong advocate. The students look forward to the program; they enjoy it thoroughly.

From the standpoint of medical school administration, perhaps the best part of the preceptorship program is the fact that its costs are very small for the university. This is an experimental education program that has not required a large grant from private philanthropy and has not increased the cost of medical education. The only expense incurred by the university is the cost of travel for the Preceptorship Committee for the constant evaluation of the program and the cost of the annual meeting at the medical school. It is the preceptors who bear the cost of this particular program. They bear this cost willingly because of the stimulation they receive as preceptors. It is our own estimate that during the course of a year the preceptorship panel as a group expends approximately \$30,000 for the support of the program. This, of course, is a significant contribution to medical education. We believe that any medical school can begin such a program without significant increases in expenditure, a novelty in experimental experiences.

Part of curriculum

The preceptorship program started

with us as an experiment. It is now past the experimental stage and has become an accepted part of our basic curriculum.

We recognize that the practice of medicine is changing and for this reason intend to keep this program fluid enough to keep pace with the changes. The general practitioner is becoming more and more specialized and an increasing number of men with specialty training are entering general practice. We have some small towns that are served by internists and surgeons; we anticipate that there will be more in the near future. We are certain, however, that one principle of our program will not be changed in the foreseeable future: the basic requirement that the preceptor practice alone or, at most, with one partner and that he practice in a small community.

The faculty has considered the preceptorship program intensively over a period of several years. Our experience indicates that the program provides an efficient means for transmitting to the student a knowledge of the comprehensive aspects of medical care. The enthusiasm and recently acquired knowledge of the student coupled with the experience and maturity of the preceptor combine to provide a mutually enjoyable and profitable experience. It appears to us that comprehensive medicine may best be taught in a program developed around that person who truly provides it—the general practitioner in a small community.

El papel de los preceptores en la Educación Médica comprensiva

En la Escuela de Medicina de la Universidad de Kansas funciona, desde 1950, un programa derivado, en parte, de otros sistemas análogos empleados por las Universidades de Oklahoma y Wisconsin. El propósito es abrir

a los estudiantes horizontes más amplios en relación con la práctica de la Medicina, sobre todo en lo que se refiere a aquello que no es posible mostrar adecuadamente en las clases o en el laboratorio. Al estudiante de cuarto año se le da la oportunidad de estudiar, trabajar y convivir en estrecho contacto con un médico preceptor, activo en el campo de la práctica general, el cual le puede enseñar algo que, antes, por lo general, ha sido descuidado. El estudiante adquiere, por ejemplo, una apreciación de las responsabilidades cívicas y sociales del médico. En compañía de su preceptor, asiste a reuniones de las organizaciones comunales; se familiariza con los problemas de administración de un consultorio médico privado y se da cuenta de las relaciones éticas que existen entre el médico y sus pacientes y colegas. Así se inculcan a los estudiantes conceptos éticos y filosóficos que la atmósfera de los grandes centros médicos universitarios no es capaz de crear. Viendo a sus pacientes—que ya no son seleccionados especialmente para él con fines de instrucción—en su medio ambiente cotidiano, puede percibir mejor el alcance de la práctica médica, y advertir que el paciente no está interesado en una diagnosis de su enfermedad, sino en obtener ayuda, y que la práctica de la Medicina ha de trascender más allá de los muros de la oficina médica. A fin de que los estudiantes puedan obtener el máximo provecho de ese programa, se escogen lugares de no más de 2,500 habitantes, lo cual permite un contacto estrecho entre el estudiante y sus pacientes, así como entre el estudiante y su preceptor. Al mismo tiempo se demuestra a los futuros médicos las satisfacciones que ofrece la práctica en las comunidades pequeñas, las cuales necesitan desesperadamente un incremento en los

servicios médicos. Los preceptores son seleccionados, tras cuidadoso escrutinio, por un Comité de Preceptorado. Hoy día existen en el Estado de Kansas 70 médicos nombrados "preceptores en Medicina". La duración del período de práctica constituye cierto problema, pues el *curriculum* está ya excesivamente lleno. Se ha acordado, finalmente, que el período sea de cuatro semanas y media. Durante ese tiempo, el estudiante que vive y come en casa de su preceptor, acompaña a éste a todas sus visitas profesionales y le asiste en ellas, asumiendo, después de algún tiempo la responsabilidad por el cuidado de los pacientes, lo que incluye ciertos trabajos de laboratorio (todo lo cual hace sin recibir salario alguno). Tres o cuatro veces al año, los miembros del Comité de Preceptorado hacen viajes de inspección para evaluar los resultados del programa. Al terminar el período de aprendizaje del estudiante, el Decano recibe un informe del preceptor sobre el estudiante, así como un informe del estudiante sobre sus experiencias.

Al parecer, el programa de preceptorado, que fué iniciado como un experimento en la Educación Médica, pero que ya ha pasado esta fase y forma ahora parte del *curriculum*, ha dado excelentes resultados. Para los estudiantes que lo aceptan con entusiasmo, significa una experiencia valiosa, y, por su parte, el médico preceptor recibe gran estímulo con su papel de educador. Debido al programa de preceptorado se ha observado en Kansas, además, una innegable elevación del nivel de la práctica médica general.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

Trends in Medical Education and the Opportunity of the University of Puerto Rico

JOHN B. GRANT

THE topic of trends in medical education raises two separate considerations for discussion. The first is that of medical research and its present stage of evolution. Education merely reflects knowledge. The second is that of universities and their medical schools and what, if any, are their extramural responsibilities in the second half of the 20th century. My present concern is how these considerations relate to the University of Puerto Rico.

The importance of both of them has been recognized in the objectives of the medical school set out by Chancellor Benítez, under date of June 1952, and reiterated in the general statements of the bulletin of the school. One of these is that the undergraduate instruction should provide high standards in training. Another is that the school be the focal point of training, information and stimulus for the advancement of medical science and medical care throughout Puerto Rico. The attainment of the first of these objectives requires that the five defects of con-

ventional medical education of the '20's and '30's should be removed, in order that the curriculum may provide opportunity for students to train themselves not only in anatomical and clinical pathology of organ systems, but also in psychology, anthropology and other social sciences for the purpose of observing the individual in the setting of his family in his general environment. These defects I speak of have derived largely from the over-specialization of "scientific medicine," which has resulted in fragmentation of the patient into organ systems; failure of continuity, with mostly episodic observation of the patient; and, as a consequence, lack of opportunity either for learning the social-psychological situation, which may interact on the clinical symptomatology being observed, or for practicing prevention. In addition, students have not been given the chance to acquire the knowledge and spirit of teamwork necessary for rehabilitating patients to social usefulness in the community. To attain the medical school's second objective, the medical center, which trains all categories of health service personnel, must be made the base for integration of the

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organization so that it can provide a coordinated system of both the health care services as well as continued and continuous training.

Medical education background

A brief historical orientation in medical education is necessary, if one is to be able to interpret the cross-section of today and project it into the future—especially as to the opportunity or lack of opportunity of Puerto Rico. European medicine may be said to have had its beginnings with Vesalius in 1543, when his anatomical dissections broke with Galenic dogmatism. In passing, it may be noted that, like many other present-day disturbers of complacency—with existing beliefs and procedures, Vesalius was called “an impious madman who is poisoning the air of all Europe with his vaporings.” It is true that Europe possessed medical schools as early as Salerno in the 10th century. However, despite Paracelsus in medicine and Paré in surgery, both of whom were contemporaries of Vesalius and also broke with the dogma of Galen, medical education as such was not truly reoriented until the first half of the 18th century, when Morgagni began to correlate careful clinical observations with changes in anatomical pathology. (This work was brought to a high degree of development by Rokitsanski 100 years later). Another landmark in the first half of the 18th century was Boerhaave, who formalized observational bedside instruction in Leyden, the birthplace of the later English, French and Austrian schools of clinical medicine. Although the Harveys and Sydenhams made earlier empirical but outstanding contributions, there was, nevertheless, still no real knowledge of what disease is or how

it is caused. That knowledge had to wait until diagnostic techniques were developed by Auenbrugger's percussion and Laennec's auscultation (1819), whereby abnormalities of the lungs and heart could be determined. “Scientific medicine” had to wait still longer, until the development of laboratories of experimental medicine, which came about largely because of the atmosphere of the universities in what was later known as Germany. The first was Purkinje's pharmacological laboratory, established in Breslau in 1824. Liebig's chemical laboratory was founded in the same year; Virchow's cellular pathological laboratory, in 1856; Ludwig's physiological laboratory and Claude Bernard's laboratory in Paris, in 1868. Pettenhoffer established his hygiene institute in Munich in 1865. Concurrently with these beginning efforts to explain the nature of disease and its causation there were epidemiological studies concerned with explaining etiological factors: Semelweis' much opposed elucidation of the factors in septicemia, particularly puerperal fever (1849); Snow's elucidation of cholera (1854); and Budd's explanation of the spread of typhoid fever. In the meantime, Lister was anticipating the work of Koch and Pasteur in identifying the specific germ factor as it relates to infectious diseases as a whole. The work of these pioneer medical scientists and their extension of the frontiers of medicine was made possible only by supporting progress in biology, chemistry and physics. In general, it may be said that the beginnings of experimental medicine during the latter half of the 19th century led to the flowering of “scientific medicine” in the first half of this century.

What has been the impact on medical education? I believe this

query can best be answered by analyzing another question: Why have countries successively lost their pre-eminence in medicine and medical education? France was the leader during the first part of the 19th century; then, about the '70's, the center of gravity moved to Germany, and from there, after World War I, to the United States. Of the number of factors responsible, the predominant one would appear to be that each country provided the highest level to which the *organization of facilities for research* had then evolved. France, over a number of decades, provided the best organization for hospital clinical instruction and research, which Boerhaave had first developed at Leyden (1701). Then, with the extension of clinical medicine in Germany to include basic science laboratories, during the middle and second half of the 19th century, that country led the way in demonstrating the higher level of medical research and education attainable where organization for research permitted laboratories to interact with the clinical disciplines. The shift to the United States resulted from raising this level even higher—an achievement, however, which may prove, along with biophysics and radioactive isotopes, to have been only a "blooming" rather than "flowering" of exact knowledge in the medical sciences.

A new era

May it not be that a third stage of evolution is now commencing? More complete knowledge of health and disease can be obtained than ever before; today clinical medicine interacts not only with knowledge of clinical pathology from the basic sciences but also with knowledge of social pathology derived from inter-related research in the community

through psychology, anthropology, and particularly psychiatric epidemiology. It is true that the present diagnostic tools of social pathology are almost as primitive as were the tools of clinical pathology before or about the time of Auenbrugger, Laennec and Morgagni; but clinical pathology was not therefore precluded from further development. The observations of hospital bedside teaching and the autopsy table made possible many of the advances in physical diagnosis; and the development of "comprehensive care clinics," with continuity of observation of the family in home, clinic and hospital, may well be the engagement preceding the marriage of laboratories and hospitals with communities which will usher in a third extended level of medical research and education—and bring yet another shift of preeminence.

The fact is that the five chief defects, enumerated earlier, of present clinical instruction and research in "scientific medicine" cannot be corrected without research extending from the basic laboratories and the hospitals into the community. To quote George Berry, "Scientific medicine must become comprehensive medicine, yet not become thereby any less but more scientific." *One general principle governs the need for extension of medical research into the laboratory of the community. This is that disease experience exhibits a cumulative injury which manifests itself in an accelerated aging. When communicable diseases were the chief causes of death, the fit were those who managed to survive earlier diseases because of natural resistance. Now that the chronic diseases are the chief causes of death, the fit are those who have a minimum of disease experience in their earlier life. Con-*

sequently, primary emphasis should be placed on those factors of environment which have a broadcast effect on the population as a whole. The AMA Council on Medical Education and Hospitals recommended in 1955 that "the internship-residency training program . . . should stress understanding and evaluating the patient's family relations, his economic and social status and his position in the community. It is only by grasping the importance of the patient as a composite entity that the physician can attain the fullest mastery of his profession." Obviously this "evaluation and understanding" can be stressed only through training facilities outside of the hospital in the community itself. One is curious how hospital trustees and medical boards are going to provide these facilities. Perhaps the answer will be found in the experience of progressive schools of nursing which are already making this emphasis. Notable experiments in comprehensive medicine have begun in the medical schools of Cornell, Colorado and Harvard, etc., in the United States; and, in Edinburgh and Manchester in Great Britain. These, of course, are only first faltering steps; maturity may require as much time as the interval between the first basic science laboratories and the maturing, during our memories, of scientific medicine. The accelerated progress, however, in both the natural and social sciences should result in established disciplines in social medicine within this generation.

Extramural responsibilities

Let us turn now to the second consideration under discussion, the extramural responsibilities of universities and their medical schools. Flexner, in "The Idea of a Modern

University," quotes Lord Haldane as saying, "It is in universities that the soul of a people mirrors itself." Flexner himself points out that "universities as such tend to lag behind the life which they express and further." "An important point is that universities must give society not what society wants but what it needs." He goes on to say that the social and political situation within which we live is the realm where the universities are doing least, and that because this realm is the most dangerous to approach it should have priority for its mastering. Flexner further points out that, while pure science is revolutionizing human thought, applied science is destined to revolutionize human life, and that we are therefore at the beginning, not at the end, of an epoch.

Julian Huxley has summarized the solution to the lag in this way: "The understanding and controlling of man's social environment requires development in three interrelated ways of formulating methods; able brains attacking its fundamental problems and discovering its principles; and third, practical outlets in application through social experiment comparable to those in the natural sciences." The solution of the medical aspects of the problem is, then, to undertake investigation of the best methods of applying the results of research in the natural sciences to the requirements of medical protection for large units of population. As in all branches of science, this can be done only when suitable organization is established specifically to determine the most effective and economical methods of applying the results of basic research to the maintenance of health, prevention of disease and cure of disease through organized community effort. This

implies that the investigative organization must control its own experimental community in the same manner that teaching hospitals are available for research in clinical medicine or a physical laboratory is controlled by the physicist. No scientific progress in organization can be expected until this necessary step has been taken through universities and other organizations responsible for research.

Attention must be directed to the great danger of shortsightedness on the part of legislatures when they establish medical centers for the specific purpose of the medical leavening of their community. The legislatures, because of lack of experience of their medical consultants, appropriate funds adequate only for a conventional run-of-mine medical school having no extramural responsibilities, and ipso facto consider their financial obligations discharged. The result is, not a center that will stimulate health care services throughout the community—still only a concept this side of the Iron Curtain—but a prematurely-born institution incapable of fulfilling its avowed community purpose. During the past decade, two glaring examples of such legislative shortsightedness have occurred on the mainland. Two points must be borne in mind. First, the discharge of extramural responsibilities requires budget over and above that needed for usual intramural training and research. Second, and even more essential, planning for the discharge of state-wide community functions must run parallel to and not follow the blueprinting of intramural bricks-and-mortar and other facilities. Shortsightedness and ignorance in these two respects have a bad sequel, even if the legislature belatedly provides funds for the discharge of extramural responsi-

bilities. Preoccupation with buildings and the staffing of the new center not only shoves into the background any concurrent serious consideration for implementing the extramural objectives, for which the bricks-and-mortar was to be the means to the end, but during the vital initial period has the effect of establishing the conventional intramural vested interests as an almost insurmountable obstacle to such consideration. Legislators and their advisors should realize that a medical center designed to include extramural responsibilities is an extremely complicated undertaking; and that, if extramural blueprinting is not begun at the same time as planning for intramural developments, an all but irreducible lag will be created. Hopkins spent five years in planning before opening the first real university teaching hospital.

Medical regionalization methods

How does a university extend its medical influence into the community? The preliminary steps, as we have seen, are: (1) to comprehend that the cost of such extension cannot be a charge on the university's budget for intramural responsibilities; and (2), in the health sciences, to draw up a blueprint of what the medical center expects to accomplish. This last falls into two categories—administrative services, and consultation and training services. Both require what is today termed "regional" organization for effective undertaking. The size of population in a regional unit is determined by the cost of the specialized central services and the communications. It is uneconomical, for example, to provide more than one neurosurgeon for less than one million population;

Trends and the Opportunity of the U. of Puerto Rico

or a central blood bank, medical audit, or purchasing agency for less than 100,000 hospital discharges per annum, etc., etc. Regional organization in Puerto Rico must necessarily differ from that in W. Australia or Saskatchewan, where aeroplane ambulances are in use because of the scattered population. However, the blueprint for a community such as Puerto Rico, with a population of between 250,000 and 500,000, is fairly clear-cut. Municipal hospitals and health centers are serviced from a single center for administrative and educational services. The administrative services include central purchasing, blood bank, maintenance, manufacture of supplies, laundry, etc. The consultation and educational services provide routine continuous training, in addition to sporadic "institutes," and circuit-riding postgraduate training, for physicians, nurses, accountants, administrators, etc. In brief, organization and administration of all health services in the region are components of a single, coordinated institution with outlying subunits. Organization, rather than the other two essentials of health care—funds and personnel—becomes the determining factor of the level of health care in the area—especially if the consumer is educated as to what health care is.

The financing of a university-administered medical regionalization project is chiefly one of bookkeeping. The health department assumes the routine service costs based on its over-all averages. The university is responsible for costs chargeable to research, or to the numbers or quality of personnel required for discharging consultation-training responsibilities. The latter costs for an average region cannot be less than \$100,000 per annum, and for a popu-

lation of half a million effective integration of research and training should be \$250,000—which is cheap if one can visualize the improvement of health care at a cost of 50 cts. per capita. Is this too much for a university to discharge its extramural health services responsibility? Doubtless, to a few, the organization of administrative and educational services of regionalization conveys a mental blank, because of lack of any previous experience in such organization. To these one may point out that the Federal government's Hill-Burton billions for bricks-and-mortar have fallen so far short of achieving the optimum of anticipated health services, that the last Congress appropriated funds for research to develop effective methods of regionalization of hospitals and health centers in place of the conventional, antiquated, isolated institutional units still unfortunately prevalent in the minds of trustees and hospital medical staffs.

Clinical physiology, pathology and therapy become disciplines chiefly through knowledge developed in university institutes. Social physiology, pathology and therapy no less require their own university controlled and supported laboratories for the development of disciplines of social medicine in interdisciplinary conjunction with the social sciences.

Summary

In the preceding discussion we have examined the opportunity that awaits the embryonic Puerto Rican Medical Center, which is being recognized by the installation of a chapter of the honor medical society, Alpha Omega Alpha. The successful marriage of basic science and hospital laboratories with social-medical research in the community requires

two interdependent factors—leadership, and an appropriate social milieu. Fortunately both of these exist in Puerto Rico, to an extent that would be difficult to duplicate anywhere and hardly possible in most states in the Americas. The leaders of the medical profession and the faculty of this school are the equal of any in professional background, and, were they minded to do so, could readily provide the leadership to bring about the third era in the evolution of medical research and education. As important, if not more so, is the existence of the social milieu, which resembles the unique "university" atmosphere one hundred years ago in Germany that gave the potential medical scientists in that area the organizational opportunity to inaugurate the second era of medical research and education. The stated Commonwealth policy is that of a social welfare state, equally interested in the development of free-enterprise industry and of the economic welfare of its people. This is reflected in the stated desire of the University to "mirror the soul of its people." Thus, Puerto Rico should realize that it is faced with the chance not only of contributing to the evolution of medicine, but also of creating a demonstration of medical education and health services organization of international significance, particularly for the Americas. The Hon. José Figueres, President of Costa Rica, emphasized only two weeks ago the unique position of Puerto Rico in constituting the bridge whereby the social economic pattern of the United States could become adapted for utilization by Latin American countries. Inevitably, some medical group somewhere will develop this new era. I conclude by hoping that some of the members of this new chapter of AOA

may win their life distinction through contributing to the inauguration of this third era of medical evolution as a proof of the forwardness of the medical environment in which they enter their professional lives.

Las nuevas tendencias en la Educación Médica y la Universidad de Puerto Rico

La investigación científica y la instrucción médica universitaria son las dos principales consideraciones cuando se discute el porvenir de la Educación Médica, dice en este artículo (un discurso pronunciado el 7 de marzo de 1956 en ocasión del establecimiento de la sección puertorriqueña de la sociedad *Alpha Omega Alpha*) el Dr. John B. Grant, Profesor de Salud Pública. La gran importancia de ambas fué reconocida plenamente por el Canciller Benítez de la Universidad de Puerto Rico cuando, en 1952, estableció los objetivos del Colegio de Medicina: elevación del nivel de instrucción para los estudiantes no graduados y Escuela de Medicina concebida como centro de educación e información, y de estímulo para la investigación y para el progreso de los servicios médicos de todo el país. El autor discute las posibilidades que la Universidad de Puerto Rico tiene de lograr sus propósitos y analiza los elementos que fundamentalmente determinan la cualidad de la Educación Médica. Después de presentar un breve cuadro de las tendencias de la Educación Médica desde los tiempos de Vesalio, estudia las causas de esplendor y decadencia de la Medicina en diferentes países. Francia en la primera mitad del siglo XIX, luego Alemania, y, finalmente, después de la Primera Guerra Mundial, los Estados Unidos, han estado a la cabeza de los demás países occidentales en cuanto al nivel de la Medicina y Educación Médica. Cada uno de esos países, en su momento de esplendor, había llegado al nivel máximo en cuanto a organización de las facilidades para la investigación científica. Mas el Prof. Grant se pregunta si el alto nivel actual de la Medicina en los Estados Unidos, superior en años recientes al de los otros dos países, no constituye, junto con el enorme desarrollo de la Biofísica y la Radio-Isotopía, un "brotar" más bien que un verdadero "florecer" de la Ciencia Médica, y especula sobre la posibilidad de que presenciemos el principio de una nueva fase de evolución que tendería a una fusión de los conocimientos derivados de las ciencias básicas con los

derivados de la investigación sociológica, antropológica, psicológica y psiquiátrica. Los defectos de que adolecía el antiguo *curriculum* del Colegio de Medicina de Puerto Rico (como el de las Escuelas de Medicina en general) eran los derivados de la superespecialización propia de la "Medicina científica". El programa de instrucción debe ser revisado radicalmente si se quieren lograr los propósitos enunciados por el Canciller Benítez. Sin embargo, si la nueva tendencia ha de dar el fruto deseado no ha de olvidarse el dicho de G. Berry: "La Medicina científica ha de ser Medicina comprensiva, y por ello no menos sino más científica".

En cuanto a las responsabilidades de la Educación médica universitaria hacia la So-

ciedad y el país, hay que buscar los mejores métodos para aplicar los resultados de la investigación científica a la protección de grandes grupos de población. El Centro Médico de Puerto Rico, concluye el Prof. Grant, tiene un gran porvenir ya que, teniendo dirigentes capaces y siendo el medio social más apropiado que lo es en la mayoría de los Estados de Norteamérica, posee la oportunidad de llevar a cabo, en la Educación Médica, la fusión de la ciencia de los laboratorios de Hospital con la investigación médico-social de la comunidad. Puerto Rico tiene la oportunidad de crear una organización de la Educación Médica y de servicios médicos que podría servir de modelo para las dos Américas, sobre todo para la América Latina.

An Orientation for Instruction in Pediatrics

MILTON J. E. SENN

ANY ASSESSMENT of trends in the medical care of children brings forth evidence that many changes have been occurring. For example, studies of children admitted to hospitals in this country show that today in most communities there are fewer children admitted because of complications of upper respiratory disease, infantile diarrhea and the common communicable diseases with or without complications—all diseases which previously were responsible for filling most of the beds. Beds are now occupied more than heretofore with children chronically ill or physically deviant where there is some hope of repair and rehabilitation. The general practitioner and pediatrician who are responsible for the medical care of children also acknowledge changes as seen in their practices carried on in office and home. The well-trained physician admits that he has need to hospitalize children less frequently. But this depends not only on the nature of the illness of his patients, but also on his ability and confidence to provide skillful and comprehensive care outside the hospital setting. Calculating how his time is spent, the pediatrician approximates that only one-third of his time is spent with sick

children. About two-thirds of his professional time is spent dealing with children who are not sick but whose parents are concerned about keeping them well, promoting and improving growth and development both physical and emotional, and carrying out proper child rearing practices.

There are many reasons for the changes in the incidence and character of the diseases seen by physicians. Outstanding among these are our public health measures which have so effectively prevented diseases which once were considered common scourges of childhood. The new drugs, particularly the antibiotics, have brought better control as well as prevention of infectious disease. Outside the realm of scientific medicine one sees another forceful promoter of change. This is through lay education which has given parents better understanding of themselves and of their children and has urged them to seek earlier and more sustained help from the right kind of professional assistance.

Preparation for trends

The question must be asked by every medical teacher, "How prepared is the medical graduate today to cope with these trends?" Looking to physicians for the answer, I have been impressed with their self-ad-

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mitted lack of preparation. This lack has frequently led them to criticize their training, to feel that they have somehow been "short-changed" by their teachers, who may have been scientists of high rank, and clinicians of superb ability when dealing with patients in hospital and laboratories, but who were in the last analysis unrealistic in what has been called "the life outside the ivory tower." The unfortunate result is that many physicians dealing primarily with children soon become unhappy in their work. Many return to the university asking for reorientation and more insightful approaches through postgraduate courses of one kind or another. The medical educator who gives thought to changing trends in the need of his patients concludes that the role of the physician must also change to keep pace with the services required, and examines carefully the educational program for which he is responsible. It is well known that even though these trends in need of patient, and role of physician are clearly recognized, attempts to change medical curricula and teaching methods meet with great resistance and many obstacles. Nevertheless, each school tries to make its own modifications. At Yale an attempt is made not only to evaluate periodically our program of medical education and patient care in hospital, in the out-patient department and community, but also to assess the nature of medical practice outside our institution. We have concluded that today care of sick children is still important to pediatrics, but sick children alone are no longer the main concern of pediatric education. Our interests are now equally with children who are healthy and with parents who want guidance in their rearing and education. The staff is concerned with finding out more

about the growth and development of healthy children, without forgetting about the deviants of growth. We wish to understand the relationship between physical, emotional and social well-being, and we are trying to learn how to view a child—not as an isolated organism, but as a human being; a member of a family living, acting, and feeling in a community of other human beings. No longer limited in focus to treating a child's disease, attempts are made to deal comprehensively with the child who may be sick, but who most of the time is well. Our department of pediatrics is more a "department of child health." We have had the courage (and it takes courage to break with medical tradition) to propose recently to the president of Yale that the official name of our department be changed to that title because it would be more accurate in expressing our function as well as a point of view. This practice has precedent in the children's hospitals of Great Britain, where it is rare to find a department designated as "pediatrics." However, there is more involved than symbolically changing a name. There need to be practices which actually carry out the philosophy which personalizes the child patient as an individual, as a member of the family, and which thinks of him as more than an aggregate of interrelated physical parts.

Teaching methods used

For the medical undergraduate at Yale, the concept of the child as a person whose development and behavior is influenced by various cultural, social and physical elements outside of himself, as well as by his biological inner self, is introduced in the first year of the medical school training. Pediatricians join with psy-

chiatrists and social scientists in a teaching exercise which is part lecture and part small-group discussion. The class meets two hours a week for 23 weeks. The differences between child and adult are considered. The symbiotic mutualism between mother and infant which is necessary for physical and mental development of each is described and illustrations provided to show the physician's role in fostering health. The relation of infancy and early childhood to later life is discussed and illustrated with clinical material as frequently as possible. Particular mention is made of the ways in which child and parent meet stress and develop patterns of reacting to life experiences.

Unfortunately in the second year the medical student has no contact with pediatricians; this lack breaks the continuity of thought about children and their development which should be sustained throughout the four years of medical school. Students in their third year of medical education spend about six weeks full-time in pediatrics assigned to the in-patient service as clinical clerks. We attempt to give them more than the usual opportunities for interviewing patients, carrying out physical examinations and laboratory studies. Assigning each student to a preceptor who is a member of the senior staff and who is responsible for no more than two students at a time, an opportunity is provided for an intimate and informal relationship. As in all good teaching, the preceptor teaches less by talking and more by setting the example. Spending time together as colleagues, rather than individuals of a different educational status, the preceptor and student together interview parents, examine children, visit laboratories to collect the results of studies,

and discuss the literature and variety of topics which may or may not be related to medicine. The hospital "rounds" whereby a student follows a teacher from bed to bed continues to hold fascination for student and clinical teacher. However, the purpose of this exercise is not merely to teach the student how to recognize disease and to fit it into a nosological category and recommend a currently appropriate therapy. We have attempted to make health and rehabilitation from illness coequal in our interest with morbid pathology, and for that reason have experimented with these teaching "rounds" not in a unit disciplinary approach of pediatrics alone, but rather one which brings together representatives from various medical disciplines as well as those from nonmedical areas, particularly the social sciences. By frequently including a physiologist, sociologist, anthropologist, epidemiologist, social worker and psychiatrist the usual bedside round-making has many opportunities for broadening the scope of interest of all participants. Even more important, it brings benefit to the patient. There is the opportunity now of looking at him more as a person and less as a case of particular pathology; of helping restore him as a person to membership in a society, whose milieu must also be considered not only in seeking etiology, but also in rehabilitation and convalescence. The sick child is viewed not only as a sick individual but as a member of a family and a community, and it is within these that the cause of his ill health is to be sought and the treatment provided. Such teaching arrangements are not easily executed. One of the great difficulties is that a social scientist, like the physician, may be trained to have a narrow point of view, and sees

only those elements which he has been alerted to by training. Furthermore, each of us has his own technical language, which is incomprehensible to others, so that communication is often difficult.

Joining disciplines

Supported financially by grants from the Commonwealth Fund and Russell Sage Foundation, an attempt was made some years ago to overcome this gap between two disciplines by training some pediatricians in psychiatry and by placing a sociologist as an "intern" in our department of pediatrics. Such hybrid professional training has resulted at Yale in an effective alliance between different disciplines because of the greater ability for interpretation by the liaison person. But whatever the arrangement, what is important is that the student's education be organized around the central themes of health rather than illness, and of a person as more than a body part.

An important by-product of this teaching in which persons from different disciplines and with different professional backgrounds join forces is the cross-fertilization of ideas and points of view which come to teachers as well as students. Invariably each takes back to his own special group some new thoughts and insights. In this way, for example, the department of pediatrics at Yale has become more than a department of the medical school. It is more a department of the university in general. The sociologist making pediatric ward rounds has brought back to his colleagues in the department of sociology and to their students, information about sick people and their care, and about medical education which has helped change the direc-

tion of their research interests and which has broadened the understanding of sociologists regarding man and his nature. Third year students are given a limited but effective contact with family care by accompanying pediatric residents on postpartum home visits.

Plans are underway to develop a home care program for other patients who have been in hospital and are convalescent, and for those who are usually ambulant outpatients. Medical students would be assigned to them under personal supervision of senior staff persons who would accompany them on their house calls.

The outpatient program

The approach to the fourth year medical student at Yale has been through the outpatient department. Working as a clinical clerk for a period of 11 weeks instead of the usual five or six weeks at the same time when he is spending an equal amount of time in the outpatient unit of the department of medicine, the student has an opportunity for following some patients, both children and adults, over a longer period of time as opposed to the usual cross-sectional fragmentary contact. When the patient is an infant, even 11 weeks can provide a rich opportunity for seeing the same individual grow and change, whether he be the infant-patient or the parent. The well baby clinic is a particularly fruitful place for giving a student a chance to see significant change in a relatively short time.

The teacher of the medical student in the outpatient department should be a person of experience and ability, not only in terms of the practice of medicine, but also in communicating to students the ideal methods of patient care and demonstrating a point

of view. One of the most effective experiments in comprehensive pediatric teaching at Yale is being carried on in the outpatient department with fourth year medical students and pediatric residents.¹ This consists of a training program which involves a child psychiatrist who had extensive training in pediatrics as well, and a social worker with experience in family case work and child guidance work. The general object is to further the teaching of the principles of human behavior and medical psychology in the framework of pediatrics. The general outpatient pediatric clinic was selected because it most closely simulates everyday practice of the pediatrician and general practitioner. In addition to this it is a logical place in which to teach the relationship of community resources to pediatric practice. The largest amount of teaching time is devoted to personal supervision of the trainees by the pediatrician-psychiatrist and his social worker colleague in the care of any patient, none being especially selected because of their potential psychologic need or psychiatric problem. Each student is encouraged to use the traditional tools of history-taking and physical examination in assessing the patient and his family. He is helped by the supervisor who may sit in as he interviews the family, or who may prefer to have a conference with the medical student alone at any time during or after the student's meeting with the patient. Sometimes two or more students join together to share their experiences and to benefit from the teaching of the supervisors. Proper attention is given to the physical, social, cultural and psychological factors, in order that there may be a compassionate and comprehensive diagnostic and therapeutic survey. Visits are made

to schools when conferences with teachers may help determine next steps in diagnosis and management. Attempts are made to teach the student to be aware of his feelings and the reasons for these feelings as well as those of each patient, as the physician and patient join to work together for the improvement of his health.

It is our conviction that this approach has resulted in a more conscientious follow-up of patients by the student and a disappearance of routine dependency on specialty clinics, as well as an increased skill in pediatric interviewing for therapeutic as well as diagnostic purposes. Furthermore it seems to us that greater pleasure is felt by these students in the care of their patients who feel a return of the interest in human beings which most of them brought with them when they entered medical school in the first year, but which somehow was dampened or extinguished as they passed through the strenuous and scientifically orientated experiences of the first and second preclinical years.

Residency training

The department of pediatrics at Yale has long held the view that its medical undergraduate training program will be good only as its residency program is good. For that reason, many changes have been made in it which it is hoped will influence the undergraduate students as well. Although pediatrics as a specialty was born out of the need to focus on diseases which cut deeply into our infant and child population with their killing effects, and although the hospital became a haven for saving lives and hence the focal area for medical training, for reasons mentioned before the time has come

when medical students and residents must be shown the disadvantages and deficiencies of hospitalization as well as its benefits. The value of other approaches to the care of patients and of other facilities such as the outpatient department as well as the family home itself must be demonstrated. The disadvantages to patient and to physician in any fragmentary or episodic approach to the study of a patient such as hospitalization frequently implies should be obvious. So should the advantages of a program planned to provide sustained health supervision and guidance beyond both inpatient or outpatient hospital management, because it offers opportunity for more thorough understanding of the persons involved, and hence better medical care for the patient.

In order to test these assumptions, we started three years ago a program of pediatric residency training which tried to incorporate several features. Every intern beginning his service in July, is introduced to a family expecting a baby within a month. With consent of the prospective parents, the intern interviews them prenatally at least once. He tries to know them as a family and as persons approaching a critical life experience. He agrees to witness the delivery if possible and to take over pediatric care of the baby in times of sickness as well as in health as long as he is in residency training with us.

In the postpartum weeks, the intern, supervised by an assistant resident who also serves as his alternate physician to that family, visits the home to examine the baby and to advise the parents. Later he will visit the home if the baby is sick and cannot be brought to the dispensary. He advises them over the telephone when they feel the need to call for

help before the scheduled visits. On the first Saturday of each month parents and infant come to a special well baby clinic for their periodic checkup. Before the intern and assistant resident meet the family at these regular meetings a conference for 30 or 40 minutes is held in which each pair of trainees, i.e. intern and assistant resident, meets with a senior pediatric staff physician to talk about problems which may be expected, about growth and developmental characteristics usually found at that age, and to plan prophylactic measures aimed at preventing physical as well as behavioral difficulties. At the time of the examination and interview with the parent, this senior pediatrician is available for further consultation. After 45 minutes spent with the parent and infant, the whole pediatric resident staff meets with teachers from the pediatric staff and from the University Child Study Center with its staff representing the fields of nursery education, social work, psychiatry, psychology and sociology. A brief and rapid review of the morning's events is made by the whole group. Plans are laid for further discussion of one or two families the following Saturday morning. The total time spent in one of these morning sessions is about two hours.

On the second Saturday of the month, the same group of teachers and residents meet again. Now there may be a demonstration of a developmental examination for infants at a certain age, or discussion around problems of rearing and training such as toilet, feeding and sleeping. Opportunity is given representatives of each discipline, both medical and nonmedical, to assess what is happening in the life of the families with particular reference as to how these experiences influence the

health and behavior of the infant. The role of the physician as a person who must deal with all these matters is emphasized. He is made to feel his strength and ability in dealing at first hand with many situations. He is helped to understand the power of his personality as a force in aiding other human beings, and to approach these matters in the framework of medicine, particularly pediatrics, rather than as a psychiatrist, a social worker or a representative of any other discipline which he cannot assume. The trainee is helped to see his limitations as a professional person and is guided in the use of other community resources to whom he may need to refer his patients. Although these exercises are primarily for our residents, medical students who "elect" to do so are permitted to attend the Saturday conferences and to make home visits.

Nueva orientación de la instrucción pediátrica

La Pediatría ha sufrido cambios notables en tiempos recientes, no sólo en lo que se refiere a la Medicina científica (cuyos descubrimientos, junto con medidas preventivas para la Salud Pública, han reducido considerablemente las enfermedades infantiles), sino también en cuanto a métodos y conceptos pediátricos. Se ha llegado a la conclusión de que el tratamiento de niños enfermos no es ya la única ocupación de los pediatras. Un cambio en la actitud de los padres, quienes hoy día buscan ayuda profesional para el mejor desarrollo y educación de sus hijos en casos que antes quedaban fuera del campo médico, ha originado un creciente interés del pediatra hacia niños no enfermos físicamente. Pero cabe preguntarse: ¿Está el graduado de los Colegios de Medicina preparado para responder a esas nuevas tendencias y necesidades?

El Dr. Milton Senn, Profesor de Pediatría y Psiquiatría y Director del "Child Study Center" de Yale University, trata en este trabajo de la falta de preparación, para esas nuevas tareas, que se nota, en general, en

All the participants have concluded that this program is stimulating and educational because it makes them feel like "real doctors" working with real people, and that this is a supervised trial run of the way they will one day be required to practice. This is a time when mistakes in judgment are still expected and better tolerated than they may be later on. This is time when the trainee can look at himself as a person and decide whether to continue in pediatrics or leave it for another role in medicine—decisions which can be very costly in happiness and money if made after a person has settled into pediatric practice.

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los médicos acabados de salir de las Escuelas, y discute también la necesidad de modificar el *curriculum* de éstas para adaptar la Educación Médica a la Pediatría moderna. En Yale, dice el autor, el Departamento de Pediatría ha sido convertido en "Departamento de Salud Infantil", nombre que expresa más adecuadamente tanto la función del Departamento como su punto de vista. El concepto del niño como ser cuyo desarrollo y comportamiento son influenciados por diversos elementos culturales, sociales, y físicos externos a él, tanto como por su interna estructura biológica, es inculcado a los estudiantes desde su entrada a la Escuela. Pediatras, juntamente con psiquiatras y sociólogos, imparten la instrucción a los estudiantes de primer año, por medio de conferencias y formando pequeños grupos de discusión. Los alumnos del tercer año (después de haber interrumpido los estudios pediátricos en el segundo año, hecho que el autor lamenta) dedican seis semanas a los servicios clínicos para pacientes internos, haciéndose un esfuerzo para que dichos estudiantes logren establecer un íntimo contacto con sus pequeños pacientes. A cada estudiante se asigna un preceptor que le asiste en todas esas actividades. Mucha importancia cobran en esa

enseñanza las "rondas de hospital", cuando el estudiante sigue a su preceptor de cama en cama, pues se incluyen en tales visitas, frecuentemente, fisiólogos, sociólogos, psiquiatras, "social workers", etc. y así se cumple el propósito primordial, que es reunir no sólo representantes de las varias disciplinas médicas, sino también de los campos no-médicos, particularmente de las ciencias sociales. Así el Departamento de Pediatría de Yale ha dejado de ser una mera división del Colegio de Medicina y se ha ido convirtiendo en un Departamento de toda la Universidad, cuyos miembros enriquecen sus conocimientos y conceptos a través de la colaboración pediátrica. Al mismo tiempo se crea en los estudiantes la idea de que el énfasis se ha de poner más en la salud que en las enfermedades, y más en la persona toda del paciente que en las diversas partes de su cuerpo. Se está también desarrollando en Yale, para estudiantes de tercer año, un programa de servicios médicos a domicilio, bajo la supervisión de la Facultad. El trabajo clínico de los estudiantes de cuarto año se concentra en los pacientes externos, ya que se dedican a estos 11 semanas en vez de las 5 o 6 usuales. Interés especial tiene también, para esos mismos estudiantes de cuarto año, un pro-

grama de servicio médico a domicilio, que funciona desde hace tres años, y tiene por objeto demostrar a los estudiantes, entre otras cosas, las ventajas de tal servicio comparado con el de la hospitalización, ya que se cree que se ha hecho un uso excesivo de esta institución. Con dicho programa, cada estudiante graduado, durante el período de práctica de hospital, es introducido a una familia que espera un hijo dentro de un mes, se informa de sus problemas y trata de ayudarla, comprometiéndose a asistir al parto y a encargarse de los cuidados pediátricos del niño, tanto cuando éste se halle bien como cuando esté enfermo, durante todo su período de práctica como residente de un hospital. Esta atención incluye, además, visitas a domicilio, conferencias por teléfono con los padres y, una vez al mes, un examen del niño en el hospital. A esta enseñanza se aplican, pues, los principios de la Pediatría comprensiva, ya que el joven practicante tiene la oportunidad de discutir todos los problemas inherentes en ese servicio no sólo con miembros de la Facultad, durante reuniones regulares, sino también con representantes de otros campos, tales como la Psicología, Sociología, Psiquiatría y Asistencia Social.

New Armed Forces Medical Plan

The Selective Service System and the Department of Defense have developed a program to permit physicians who are liable for military service to be commissioned well in advance of the time they will be required to serve, and to permit successful applicants to be deferred for residency training in specialties required by the Armed Forces. Participants must be 1956 graduates of an approved American or Canadian medical school liable for two years of military service and willing to accept a Reserve commission in either the Army, Navy or Air Force. Correspondence concerning this matter should be addressed to the military department to which the applicant has been allocated.

Edinburgh University General Practice Teaching Unit

RICHARD SCOTT

Introduction

THE GENERAL PRACTICE Teaching Unit of Edinburgh University is an experiment in medical education. It is presented as one of the great variety of ways in which medical schools all over the world are exploring the teaching potentialities of domiciliary medicine. Teachers who are today concerned with widening horizons in medical education would do well, however, to remind themselves that the introduction of the medical student to a patient in his own home is not a recent innovation. Many of us have merely been reviving a teaching technique which for a number of reasons had practically atrophied from disuse. A century ago in many schools, both in this country and in the United States, medical students came under the influence of some of the most eminent clinicians of their day who both practised and taught their art in the homes of their patients. These clinicians were able to exploit the teaching facilities provided by public dispensaries for the sick poor which were often established in close association with a local medical school. The dispensary system has long been a feature of the Edinburgh Medical School, and the experiment presently to be described began in the premises of the oldest of these dispensaries which was founded in 1776. Attendance at a public dispensary was a required part of the curriculum of Edinburgh University until 1948

when the dispensaries became obsolete as the result of the introduction of the National Health Service. In 1948 the threat to the existence of these ancient institutions constituted a challenge to our medical school to appraise and review the role of dispensary teaching against the background of the changes in the curriculum (in respect of content and emphasis) which were taking place in the post war era.

This period was particularly characterized by major changes in orientation, both in teaching and research, in the field of social and preventive medicine. We were looking for new and better methods of demonstrating to medical students the significance of social factors in health and sickness. This search led us as it has so many others into the homes of our patients.

The old dispensaries had provided unique opportunities for this kind of teaching which was often an incidental by-product of the student's experience. It was true, however, that there had been little planned or systematic teaching in this area, and it looked as if the dispensaries were to disappear just as we had begun to realize how much more could be done.

The limited periods during which the sick poor could see a member of the honorary consultant staff and the visits more or less supervised by students to patients in their homes, constituted a quality of medical care very different from that which any citizen can now receive merely by registering as a patient with any

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doctor practising within the framework of the National Health Service. It was obvious, therefore, that if the medical school wished to salvage any of the teaching facilities which were offered by the old dispensary system, it might well have to become involved in the provision, to a group of patients, of medical care at least comparable in respect both of quality and quantity with that offered by any general practitioner within the framework of the Health Service.

The University Department of Public Health and Social Medicine in 1948 set up on an experimental basis and in the premises of the Royal Dispensary a teaching general practice, to provide opportunities for demonstration and investigation of the social aspects of health and sickness. It soon became apparent that the new regime had introduced many factors which completely changed the character of the experience which could be offered to senior medical students. The most important of these was the establishment of a secure and continuing doctor-patient relationship with a number of individuals and families who had previously known only the episodic and categoric experience of the clinic. This immediately imposed severe limitations on the number of students we could accept, but at the same time made it possible for those fewer students to gain a broader and at the same time a more intimate experience of the medical and social problems presented by an individual in his family setting. It soon became apparent too that our teaching would not be exclusively concerned with the field of social medicine, and the content and range of the teaching programme has been modified in the light of experience gained. In 1952 the university received a grant from

the Rockefeller Foundation which enabled it to extend this teaching and to set up for an experimental period of five years the General Practice Teaching Unit.

Since we are as much concerned with the creation of an attitude of mind as with supplying our students with factual information and experience, it would perhaps be helpful at this stage to outline three of the chief considerations which have determined our approach to the teaching program which is described below.

Specialization

As in many other spheres of human activity, the most striking feature of medical progress in the present century has been the rapid development, both qualitative and quantitative, of specialization. Specialization brings not only new knowledge and new techniques, but also a philosophy or attitude of mind which characterises those whose major concern is the application of scientific method to the solution of a problem, whether that problem be in the field of industry, education or medical practice. The medical scientist tends to approach the clinical problems presented by a patient, from the point of view of the analyst. By an analysis of the factors involved, he hopes to arrive at the diagnosis which must precede rational therapy. The analytical approach, however, is seldom adequate in itself as a means of solving the complex problems which the patient brings to his doctor. Indeed the essential feature of the management of an individual patient is a synthesis or putting together, and in perspective, of all the factors involved. Philosophers of all ages have re-

minded us that in considering the human being as a social animal we must always remember that the whole is greater than the sum of the parts, but so great has been the impact of specialization and the scientific method upon those who practice medicine that in this day and age some of us find it really difficult to accept and apply Rousseau's dictum that there are no diseases but only sick persons, while still others hail this statement as though it were a new discovery of the 20th century. The philosophy of holism as expounded by Smutts and others represents an attempt to correct the bias which has been created by our preoccupation with the merits of specialization. This philosophy is expressed in a variety of ways by medical teachers the world over, as can be seen from a study of the proceedings of the First World Conference on Medical Education. There we find that in discussions on the medical curriculum, considerable emphasis is laid on the need to integrate, to produce the necessary conditions which will lead the student to see each subject in the curriculum in relation to all the others, to enable him to build up a picture of the place of medicine in society, and in particular a picture of the place of specialization in relation to medicine as a whole. Sometimes new words or new phrases are coined in an attempt to give emphasis to this particular facet of medical education. We read of the need to teach the social aspects of health and sickness, the need to teach total medicine, comprehensive medicine, total medical care, domiciliary medicine—these and similar phrases are I suggest all reflections of this awareness.

Specialization then has added immeasurably to our medical knowl-

edge and skills, but it has also created new problems for the medical educator.

The social sciences

A second series of problems which present a challenge to the medical educator arise from the rapid expansion which has taken place during the present century, in the social sciences. The classic surveys of the cultural and socio-economic features of particular communities, experiments in group dynamics, and studies in the fields of personnel management and industrial relations, are a few examples of the ways in which we have added to our knowledge of man as a social animal. At the same time the increasing complexity of our social institutions and the growing volume of social legislation have brought into being a vast army of social workers with widely different skills and interests, who act as intermediaries between the individual and the medical or social agency which exists to meet his needs. There is abundant evidence of increased activity in that area where medicine and sociology overlap, and in many instances the impetus has come from the sociologist rather than from the doctor. Most clinical teachers, however, are aware of these developments which they reflect in varying degree in the practical instruction offered by them to medical undergraduates. But the emphasis given to these considerations varies very much from one school to another. It also varies considerably according to the interests of the individual teacher. In some schools, for example, this area has been particularly developed by the teacher of public health and preventive medicine, in others by the psychiatrist,

and in yet other schools by the pediatrician. Thanks to the rapidity with which we are achieving control over the physical factors in man's environment, and particularly from the success we have achieved in controlling the bacterium as a pathogenic agent, we tend to attach increasing importance to the significance of human relationships in the etiology of disease. This change of emphasis, together with our new knowledge derived from the application of statistical method, is particularly reflected in our teaching of preventive medicine and public health, while advances in psychiatry and in social and industrial psychology are themselves exerting a considerable influence in shaping current trends in medical education.

The provision of medical care

The third consideration which has had an important bearing on the evolution of our teaching program is a domestic affair. It concerns the impact which our National Health Service is having on the practice of medicine in this country. Since 1948 we have been committed to a national policy of providing every citizen with unimpeded access to the services of a general practitioner. The Health Service provides the framework within which the hospital and specialist services and the public health services can be related to the services provided by the family doctor, and the general practitioner has been accepted as having an essential role to play in the provision on a national scale of comprehensive medical care. Since practically all demands for medical care are initiated at the general practitioner level, it is in his consulting room that we are most likely to see the first signs of changes in consumer

demand. Members of the general public now possess, in the form of a domiciliary medical service, an eloquent means of expressing their need for an integration of the medical service as a whole, and for closer integration between the medical services and existing social services. As the service evolves, it is probable that the contribution of the family doctor will undergo major changes in respect of both quality and quantity, from that provided by his predecessor. Since our medical schools provide the basic training for all the doctors who man this service, they have a special responsibility to study these and other changes which are taking place in the practice of medicine in this country. While it is unnecessary and even undesirable to introduce vocational training at the undergraduate level, these changes in the practice of medicine must in time be reflected in the medical curriculum, so that every medical graduate wherever his destiny lies, is at least aware of the nature of the work of the family doctor and the relationship which this is likely to have, in the future, to the contribution made by medical men working in other fields.

As will be seen, these three considerations have been of major importance in determining the composition and functions of the staff of the unit, and our approach to the development of its teaching program.

Description of the Unit

The unit consists of two general practices, each providing medical care for approximately 2,500 registered patients. The two premises which are the headquarters of the practices are about half a mile apart, and students from the medical school

nearby can reach either on foot in less than 10 minutes. The patients' homes are situated mainly in the ancient centre of the city where are to be found not only a rich collection of ancient buildings and places of historical interest, but also a high concentration of the city slums. The older of the two practices is on the southern fringe of this area, and since the earliest of the city's slum clearance and rebuilding programs were located in the southern part of the city, the character of this practice in respect of socio-economic composition has undergone considerable change in the past five years. We are heavily loaded with unskilled laborers, and the inevitable problem families which one finds in such an area. At the same time because of our relationship to the medical school, both physically and functionally, a relatively high proportion of the patients in this practice belong to the professional classes. Thus, while artisans and skilled workers are inadequately represented in our population, we have an undue preponderance of unskilled workers on the one hand, and of doctors, lawyers and professional groups on the other. In the most central part of the city are to be found a number of common lodging houses, which load the second practice unduly with aged single males and the chronically unemployed.

Each practice has a staff of two doctors, one nurse, a medico-social worker (almoner), and a secretary. All hold full-time university appointments. Both nurses are qualified, apart from their general training, to practice midwifery, and one of the nurses is qualified and has practised as a public health nurse. The medico-social workers until they joined the unit had been working exclusively as hospital almoners.

All patients are registered in accordance with the terms of the National Health Service, and can claim any item of medical care which is provided under the act. The initial request for medical care is made to the general practitioner member of the staff for any item of service, whether or not this service is provided entirely by him in his consulting room, or in the patient's own home, or by his referring the patient to a hospital outpatient facility, or for admission and in-patient treatment.

Practice routine

There are three consulting periods a day at each practice, 9 to 9:30 a.m., 3 to 3:30 p.m., and 6 to 7 p.m. There are no consulting hours on Sundays, and no afternoon consulting period on Saturdays. In addition to these consulting periods, appointments can also be made at the patients' request or on the initiative of the doctor. Patients who attend at the routine consulting hours may be initiating a new contact or reporting back at the doctor's suggestion. As will be seen later, considerable importance is attached to the fact that at the consulting hours it is the patients who initiate the contact with the doctor, as the student is thus able to see the doctor being confronted by a patient whom he is seeing for the first time with a new episode of illness. As well as these routine surgery hours, there is one session a week (on Tuesday afternoons) devoted to child welfare. At this session babies from birth to the age of 5, who are registered as patients of this practice, are brought by their mothers for routine health supervision, vaccination, immunization, etc. A routine antenatal service is

given to patients by appointment on Wednesday mornings. At any time during the 24 hours, patients are free to put in a call for a home visit. They are free to nominate the doctor of their choice, and as far as possible they are seen by their own doctor. Thus, initial requests for home visits are never answered by students, although a student may accompany the doctor on such a visit and afterwards take over responsibility for follow-up. The whole range of domiciliary medicine, including midwifery, is provided for the patients. Even if the patient's condition calls for exceptional diagnostic or therapeutic skill of a highly specialized nature, he must always see his family doctor in the first instance.

The doctors in common with all general practitioners in Edinburgh have open access to mass miniature radiography and to the radiology department of one of the local hospitals. The hospitals have arranged for all local general practitioners to have access to hematological, biochemical and bacteriological laboratory services as aids to diagnosis, so that a patient need not be referred to the hospital for purely diagnostic purposes before he has been adequately investigated by his own doctor. A full range of consultants is also available to be called out for domiciliary consultation. This service, which is part of the National Health Service and provided without additional payment by the individual patient, includes, for example, electro-cardiography and the advice of a consultant cardiologist, and mobile radiology with the services of a radiologist provided in the patient's home. All of our patients admitted to hospital are followed-up by their own doctor, who visits them in hospital and consults with his colleagues

there, but during the patients' stay in hospital the legal responsibility and the clinical initiative rests with the hospital specialist or consultant concerned.

In obstetric cases, our doctors accept responsibility for the complete prenatal care of pregnant mothers in the practice, even if they are to be delivered in hospital. The patient attends hospital for first booking, and does not report back until the 36th week when she will be seen by the consultant and will bring with her a full antenatal record provided by her own doctor. Her own doctor will visit the patient in hospital in a more or less social capacity and for the purpose of liaison, and takes over responsibility immediately after the patient has been discharged, but if the patient is being delivered at home (approximately one-third of all cases) the doctor remains clinically in charge throughout, and in all cases the postnatal examination is performed by the patients' own family doctor.

From 9 a.m. to 5 p.m. each nurse is on duty at the premises of her own practice. She works in an 'examination and treatment room,' which adjoins the doctor's consulting room, and the patients can be referred to her during the surgery sessions in the mornings and afternoons. In addition she sees many patients who report to her on their own initiative or attend for follow-up treatment. Much of the routine work of the nurse consists of assisting at examinations, doing routine dressings, giving injections, doing routine weighing and urine testing, but an increasing part of her work consists of giving detailed advice under supervision of the doctor on a host of subjects ranging from diapers to diet and from constipation to contraception. Particular emphasis is

laid on the health education role of the nurse. Although most of her work is done in the practice premises, the nurse also undertakes a limited amount of home visiting. This is chiefly for the purpose of liaison since the practice makes full use of the domiciliary nurses and midwives which are provided by the local Health Authority as part of the Health Service. The nurse has a particular duty to promote liaison with her colleagues in the public health field, and she takes part in regular routine conferences (held at least once weekly in the practice premises) with the health visitors and midwives who work in our area and are employed by the public health authority.

The medico-social worker (almoner) has an office also adjoining the doctor's consulting room. She sees patients referred to her by the doctors or by the nurse, and as her function becomes known to the patients of the practice an increasing number of patients initiate their own contact with the medico-social worker. As far as possible the almoner sees all new patients as they register in the practice and during the initial documentation is given an opportunity of explaining to new patients her role as a case-worker in the family doctor team. All pregnant women are referred to her routinely at their first appointment. This also provides her with an opportunity of establishing good contacts with the families in the practice, and of identifying herself in the patients' minds as a member of the family doctor team. The almoner does more domiciliary visiting than the nurse. She is always introduced to the patient in the first instance by the family doctor. She may at the patient's request or at the doctor's request visit any patient in the practice. Her home visits tend

to be mainly to old people who are more or less housebound, and to mothers with large families.

A routine case conference takes place daily at each practice. At these conferences the two doctors, the nurse and the almoner attend. Every patient contact, whether with the doctor, nurse or almoner which has taken place during the previous 24 hours, is reviewed.

The case conference serves as a daily reminder to all members of the family doctor team that, as in hospital practice so also in any other clinical situation, the problems presented by the patient can rarely be resolved by the unaided skills of any one doctor. The provision of adequate medical care for a single patient frequently involves the display of many different skills and techniques, and the use of many different agencies, both medical and social. Where a substantial number of different types of medical and para-medical workers are involved, it is inevitable that there should be a tendency to lose sight of the patient as a person unless some means are available for allowing each worker to know what the others are doing. Mere exchange of information, however, is not enough. There is required in addition a conscious effort to develop the techniques and attitude of mind of the team, in this approach to the provision of comprehensive and integrated medical care.

The objects of the daily case conferences therefore are:

- (1) to keep every member of the team informed about the patients who are attending, or are being visited by, any member of the team.
- (2) to enable all members of the team to contribute information, to advance opinions, or to offer advice, concerning the diagnosis and man-

agement of the clinical and social problems presented by any of these patients.

(3) to arrive at a long term policy with regard to the family or even the clan, of which this patient is a member, and to decide who will do what.

(4) to provide in-service training for the individual members of the staff, and

(5) on a basis of discussing the detail of the daily routine, to promote the integration of the family doctor team.

All members of the staff attend these daily case conferences. Where an outside agency, medical or social, is involved, we also on occasions invite a representative of that agency to be present at the case conference. Thus, for example, the school nurse, the probation officer, the disablement resettlement officer, the psychiatric social worker from the local child guidance clinic, the consultant who has been called out on a domiciliary visit, or on occasions the local parson, may attend to discuss the problems of a particular patient or family. The times of these case conferences are made known to local medical and para-medical workers, who may wish on their own initiative to consult us about a particular patient, and to encourage such consultation there is always an adequate supply of coffee. The case conference is also used for teaching (see further).

Teaching

Senior medical students are attached to the unit for one academic term of 10 weeks, and are thus able to observe for themselves how a general practitioner sets about providing integrated medical care for the patients on his list. Twenty students are accepted each term, 10 by each fami-

ly doctor team. Each practice conducts a seminar which consists of a weekly meeting attended by all members of the family doctor team and the 10 students allotted to them. The purpose of the seminar is to prepare the student and help him extract the maximum advantage from the practical experience to which he will be exposed in increasing degree as the term progresses, and to help him assimilate, correlate and systematize the personal instruction which is given by individual members of the staff. Each student is personally introduced to the patients by their own family doctor. During the time that he is with us, the student continues with his other studies. He is free on three afternoons and every evening after 5 p.m. to work in the unit. The student comes, in the first instance at least, in the role of observer and it is always made very clear to the patients that a student will not be allowed to come between them and their legal right to free and unhampered access to their own family doctor.

As the term advances, the role of the student changes from that of observer to one of apprentice. Our patients recognize that the student as an apprentice member of the family doctor team can materially help the doctor in working out a diagnostic or therapeutic problem. He may assist, for example, in clinical examinations and history taking, and in carrying out additional tests such as examination of the urine, faeces and blood, or he may visit an elderly cardiac cripple and advise members of the family in the practical nursing and management of the patient. But in all these situations the patients are aware that these students from the medical school nearby have joined us to learn

something about the work of the family doctor as an addition to their experience which has so far been limited to the hospital setting. The patients know what a family doctor is. The students do not. It is interesting to speculate as to who contributes most to the students' instruction—the staff or the patients themselves. I am inclined to think that the most important lessons are those in which the patient is the teacher.

At the beginning of the term each student is allotted one consulting period. He attends this session once a week. He is the only other person present as the doctor sees the patient coming to him without appointment. This session lasts about two hours and in some cases a little longer.

In any consulting session almost half of the patients are presenting themselves for the first time with a new incident. The student thus sees the doctor grappling with a situation where he must attempt to find an answer to such questions as these: What is wrong with this patient? Why of all the days in the week and of all the weeks in the year did the patient take ill when he did? Why did his illness take the form that it did? What does the patient think is wrong with him? What does this illness mean to the patient? What resources are available to the doctor for the elucidation of this diagnostic problem? What resources, physical, economic, social or cultural, does the patient possess or have access to, which will enable the doctor to work out in collaboration with the patient a rational regime of therapy? The students are invited to challenge the answers which the doctor offers to these and similar questions.

The remainder of the patients who are seen in a typical consulting session are those who come back once

a week or once every two or three weeks for routine follow-up and surveillance. After a few weeks the student has seen some of these patients on two, three or more occasions, and a good rapport has been established, e.g. the diabetic who has been sugar-free on three occasions is anxious to explain to the student why on the fourth occasion there has been a sudden recurrence of glycosuria (Mrs. Johnstone is anxious to tell the student that it is important for him to know that the fourth Sunday of each month is given over to a family visit to Granny's where it is impossible to adhere strictly to her diet). The student too has become familiar and known to a number of patients who present a picture of long term illness with major clinical and/or social problems. Such patients from time to time require a complete check-up and review, which may entail considerable laboratory work-up followed by a consultation with a specialist. The patient readily accepts that the student can do a great deal of this preparation under the supervision of the family doctor, and when the case is adequately worked up he goes to the hospital with the patient, sees the specialist handle the case, and, where the patient is admitted, can follow through the episode of in-patient treatment. Where social therapy is a major undertaking, and particularly where the patient requires intensive case work to resolve a social problem involving complex human relationships within the family, the student sees the almoner set about evaluating this problem and sees how she establishes joint consultation with the patient in working through to a solution.

At the end of each consulting period, the doctor takes the student on house visits, to new calls that have

come in, and to repeat visits to patients already on his visiting list. Here the student sees the doctor dealing with the patient completely in the family setting. In the doctor's car between visits, the student and doctor go over the salient facts of the case and the doctor will attempt to provide the student with the spectacles which will enable him to see the significance of the clinical, physical and social phenomena which he has just encountered. The doctor will continue visiting the majority of these patients, but in the case of a few he will leave the student to do the return visits. Thus the student gets a 'case'. It may be a straightforward first attack of tonsillitis which is already settling on chemotherapy and is without complications, where the doctor might have done one more home visit and then asked the patient to report to his surgery. The student will see the child in his stead on two or perhaps three occasions, and finally bring the patient back to the doctor at his own weekly consulting session, so that a final assessment can be made by the doctor. Where the student has been left with this patient however, on the second visit the mother might well consult him about the feeding formula for her four months' old baby. An older child may ask for a prescription for acne. The mother may have a gynaecological problem, and the student on an evening visit may well encounter the father home from work who has had a cough for six months, for which he has not taken time off to consult his doctor, but he may ask the student to check him over 'while he is there'. Running throughout these visits of major and minor organic disease which the student discusses with his doctor after each solo visit to the home, there are of course unique oppor-

tunities for demonstrating the interaction of illness on other members of the family, the importance of environmental factors, and in particular the significance of human relationships in a family setting which can be immediately related to the presenting clinical problem.

By the middle of the term each student has paid at least half a dozen home visits, and has now established himself as the doctor's student assistant with responsibility for at least two patients belonging to two different families. These patients he can examine and work up, both in the consulting room and in their own homes, and throughout this period he is in constant contact with the patient's own family doctor. Apart from the opportunities presented in the weekly tutorial session, each student is encouraged to discuss his findings individually with the different members of the family doctor team. In working out his regime of therapy, he is encouraged to think not only of the purely clinical aspects of the case. If the underlying pathology indicates that the hospital or the pharmacopoeia can supply the necessary treatment, then this is arranged, but whether the treatment consists of surgery or sympathy, pennies or penicillin, food or Freud, the student is shown how the family doctor sets about providing the appropriate remedy. In joint discussions with the doctor and almoner the student is shown that, in some cases at least, the underlying pathology may be such that instead of or in addition to, a new drug what the patient may require is a new house, a new job, a new husband, or at least a new mental approach or attitude to certain social and personal problems.

In addition to sitting-in in the doctor's surgery and doing his own

visits and examinations of patients, each student also spends one session at the well baby clinic which is conducted weekly in each practice by one of the doctors and the nurse. He also spends one session with the pharmacist, seeing the prescriptions for that day being dispensed, handling the material himself, getting to know what a pound of cotton wool looks like and what it costs, and hearing the kind of questions which a patient asks when the pharmacist hands him the bottle or box of pills over the counter.

The weekly tutorial

While the student has been gaining this personal experience, he has been attending a weekly tutorial. At the first of these sessions we begin by discussing the peculiar features of the doctor-patient relationship in general practice with a view to setting the main theme for the seminar which continues throughout the term. We emphasize the intimate personal nature of this work, and remind the students quite frankly of the ethical rules which govern the doctor-patient relationship. These senior students, of course, have already been apprised of such elementary facts. They are aware of the nature of the Hippocratic oath, and the rules laid down by the General Medical Council governing doctor-patient relationships. In spite of the high standard and personal example shown by our colleagues in the teaching hospital, there is nevertheless a fair amount of evidence to show that when the students come to the unit many of them are apt to think of medical ethics in the abstract and do not readily translate what they already know into terms of real doctor-patient situations. In this first talk it is suggested to the students

that there are two features which characterise the family doctor, and that it is only from a significant appreciation of these that the student will arrive at a picture of the actual and potential role of the family doctor. These two facets of the family doctor's work which we illustrate and amplify during the term are the following: (a) the family doctor is completely accessible to his patients. They do not have to have a certain kind of disease, they do not need to take ill at a certain time of day, they do not necessarily have to differentiate between a purely medical and and a purely social problem. They do not need to belong to a peculiar age or sex group or belong to a particular social or economic category; (b) the second feature is that there is continuity of accessibility. The family doctor is accessible to the patients, not only at any hour of the day or night and in relation to a particular episode of illness, but throughout the patient's life-time. This means that post hospital care, surveillance and follow-up, the management of the chronic, the hopeless, the unco-operative and the incurable, are all part of his daily work. It also means that he sees the patient before his admission to hospital, and that the earliest beginnings of departure from health are a major concern of his. Furthermore in the course of his daily work the general practitioner is often as preoccupied with prevention as he is with cure. To the doctor confronted with an individual patient, preventive medicine is not so much an academic discipline as an attitude of mind. In this setting curative medicine, preventive medicine and health promotion merge. Medicine is indeed indivisible when we are thinking in terms of the family doctor-patient relationship. As a health consultant to the families in his practice, the

general practitioner may well feel that the most important of his patients are the children who are not yet conceived. Finally at this first tutorial we give the student a brief introduction to the mechanics of the practice and the rationale of our team approach to the provision of total medical care in the family setting.

The second tutorial deals mainly with such practical matters as documentation, record keeping, and the routine work in the consulting room. We present only the necessary minimum to enable the student to feel at ease as quickly as possible and to 'find the place' at his first visit to the consulting room. We stress the importance of good clinical notes and the advantage of being able, from these notes, to relate clinical and social data.

The third tutorial deals mainly with the work of the social worker in the team, and a brief outline is given of the common statutory and voluntary social and medico-social agencies which are used daily by the doctor. We do not attempt here to teach case work. Early in the term it is thought desirable to concentrate on the wide range of material help available to the doctor who concerns himself with the social circumstances of his patients, but in later discussions the almoner is able to show that a trained medico-social worker has much more important if less tangible contributions to make than the provisions of material aid to patients referred to her by the doctor.

The fourth tutorial is taken by the nurse. We use as teaching material the results of a simple job analysis we have done of the work of the nurse in our own practice, and at this stage we remind the students of the number of roles of the various domiciliary nurses, midwives, health visi-

tors, and other public health nurses, with whom we are in daily contact, and who are employed outside the hospital.

At the fifth tutorial, the staff sit round the table and in the presence of the students conduct the routine case conference for that day. The students are encouraged to interrupt and to participate.

The remaining tutorials include a demonstration on prescribing in general practice and the contents of the doctor's bag. By this time the students are all participating freely in the discussion, so that these meetings are much less planned and more informal than the earlier tutorials. They take the form of a 'ward round'. By mid term the students have had sufficient practical experience to enable the staff to select three or four students who are asked to recount briefly the experience which they have had during the previous week. This usually arouses so much free discussion that it is sufficient for one of the doctors merely to act as a moderator who will allow individual members of the staff to make one or two general points that have already been noted at the daily staff conference during the previous week.

At the end of the term, three or four students chosen at random are asked to present the salient features of one of the patients who have been allotted to them. The student is asked to present his 'case' as he would do if he were handing over that patient and his family to one of his colleagues who was to take over immediately as the family doctor. What are the clinical and social circumstances of this particular patient which he feels his colleague must be made aware of in these circumstances? In setting about this task the student is really giving his own definition of a family doctor, and his

own appreciation of the relative importance of the clinical and social factors in a specific situation.

A serious criticism of this project is that it may lead to frustration on the part of the student who is shortly to enter general practice. The conditions obtaining in the unit are unusually favourable compared with those he will find as a doctor practising domiciliary medicine within the framework of the Health Service. He will not be able, for example, to limit his list to 1,000 patients and at the same time employ a secretary, nurse and almoner. This is pointed out to each class at the beginning of the term and is restated at the end of each term. We show the students that all the essential functions of the family doctor operating under National Health Service conditions are discharged by the medical staff of the unit. The only difference between our subsidised teaching set up and an economic group practice lies in the amount of time we can give to each patient. Our premises are more elaborate than is strictly necessary for the conduct of the practice, but we do not possess any apparatus, diagnostic or therapeutic, which we could not expect any general practitioner to purchase. What has been purchased with our subsidy is time. Where a secretary, nurse or almoner can do the doctor's work as well or better, the service of these auxiliaries have been purchased. At the same time we show the future family doctor that nurses, almoners and many other para-medical workers exist in the field outside the hospital but are not so far being sufficiently exploited by the general practitioner. Finally, if as I believe, the essential requirements of the good family doctor are time, tools and training, it is important to demonstrate what will be possible when all

of these have been adequately provided for. It is important that future family doctors should see this but it is just as important that future consultants, specialists, teachers and medical politicians should be aware of current trends in general practice and be able to anticipate the future role of the family doctor in the provision on a national basis of comprehensive and integrated medical care.

Other teaching commitments

It is not yet possible for the unit to offer instruction to all medical students. At present we accept only 60 students per year for a three months' course. As there are always more applications than vacancies, it is necessary to submit the applicant to a simple form of selection. Since we are not exclusively interested in those students who are destined for general practice, an attempt is made to ensure that a least some of the future specialists, teachers, administrators and research workers will have been given this insight into the problems of providing total medical care for the patient as a person in his home surroundings.

A course of lectures on general practice is given to all medical students in the final year, but this is at best a very poor substitute for the practical experience offered to the 60 volunteers.

The unit is building up a register of general practitioners who are willing to have students visit their practices and live in with them for two or three weeks during the vacation. It is now possible to place about 40 such students per year.

The unit also takes part in the refresher courses for general practitioners which are provided by the medical school.

Instrucción en la práctica médica general en la Universidad de Edimburgo

La introducción en Inglaterra, en 1948, del Servicio Médico Nacional (*National Health Service*) trajo consigo tan profundos cambios en el campo de la Medicina social y preventiva, que fué necesario establecer una orientación diferente de los programas de las Escuelas de Medicina, tanto en lo que se refiere a la enseñanza como a la investigación. Hacía falta, sobre todo, una instrucción, en el campo de la práctica general, mejor adaptada a las nuevas circunstancias. En el pasado, los estudiantes tenían como centros de tal práctica los *Dispensarios* para personas indigentes, pero éstos fueron desapareciendo desde 1948, ya que bajo el sistema del *National Health Service* todas las personas tienen derecho a servicios médicos gratuitos. El Departamento de Salud Pública y Medicina Social de la Universidad de Edimburgo (Escocia), para ofrecer a los estudiantes del último año la posibilidad de familiarizarse con el oficio de médico de práctica general (el cual tiene un papel esencial dentro del sistema actual de Salud Pública de Inglaterra), empezó desde 1948 a organizar tal instrucción; primero sobre una reducida base experimental, y luego, en 1952, con ayuda financiera de la *Rockefeller Foundation*, se extendió ésta a un número mayor de estudiantes por un período de cinco años. Las tres consideraciones principales que, según el autor de este artículo (que participó en la creación del programa), determinaron la elaboración de dicho plan, fueron las siguientes: 1) Contrarrestar las deficiencias originadas por la creciente especialización; 2) integración de las ciencias sociales con las ciencias médicas; 3) provisión de los servicios médicos. Este último factor tiene un peculiar carácter en Inglaterra debido al *National Health Service*. El programa, descrito detalladamente en el presente trabajo, consiste, en resumen, en lo siguiente: grupos de 20 estudiantes de último año son asignados, por un período de 10 semanas, a una de las dos áreas seleccionadas de la ciudad,

con 2,500 pacientes cada una, todos ellos registrados en el *National Health Service* y, por tanto, con derecho a recibir gratuitamente todos los servicios médicos incluidos en la Ley, tanto de consultorio y hospital como a domicilio. A cada área corresponde un personal de dos médicos de práctica general ("doctores de familia"), una enfermera, un trabajador de la Asistencia Social y un secretario, todos ellos empleados de la Universidad. En cada área se mantiene un Consultorio general con horas regulares de consulta, pero los pacientes pueden pedir servicio médico a domicilio a cada momento, de noche o de día. Hay conferencias diarias, cuando los estudiantes de cada área se reúnen con el equipo entero para discutir casos individuales. Si alguno ha requerido la intervención de una organización social o médica, se invita a veces a asistir a la conferencia a un representante de éstas. Así cada miembro del equipo queda informado sobre todos los pacientes y, al mismo tiempo, tiene cada uno la oportunidad de contribuir al conocimiento general de todos. Además de las conferencias diarias, los estudiantes deben asistir cada semana a un seminario en que se les ayuda a sacar el máximo provecho de sus experiencias prácticas, y a asimilar y sistematizar la instrucción que reciben de los miembros individuales del equipo. En el curso de esa práctica, el estudiante pasa, gradualmente, del papel de mero observador al de participante activo que asume parte de la responsabilidad médica.

No ha sido posible aun ofrecer la instrucción descrita a todos los estudiantes. Esta ha sido limitada a un número de 60 estudiantes por año. Al seleccionar a éstos, se ha tenido cuidado especial de incluir no sólo a los que piensan dedicarse a la práctica general, sino también a los futuros especialistas, profesores e investigadores. El objetivo principal del programa es crear una adecuada actitud y espíritu profesionales, más que impartir conocimientos y habilidades técnicas. Se trata, en suma, de ofrecer a cada estudiante la oportunidad de apreciar, sobre la base de experiencias propias, el papel de la Medicina en la Sociedad y el lugar del "médico de familia" bajo un sistema nacional de servicios médicos comprensivos.

The Selection of Medical Students

SIR LIONEL WHITBY

AS president of the First World Conference on Medical Education, which was organized by the World Medical Association, I have naturally studied the most informative volume of the proceedings of the conference published by the Oxford University Press under the editorship of Dr. Hugh Clegg, editor of the *British Medical Journal*.

One of the most interesting sections of this publication describes the "requirements for entry into medical schools in different parts of the world, and also some of the methods used for the selection of students."

These papers are worth careful perusal. One can learn much from other people's methods, whilst critical comments, which have an international spread, are an excellent corrective for national complacency. The authorities whom I quote in this review were speakers at the conference.

It is of interest to note in passing that, in some European universities, the students select themselves. The statutes of the university make it possible for anyone to study medicine who wishes to do so, and the student has to do no more than register his name as a medical student at the opening of the academic year. There is naturally a big casualty list at the end of the first week, among those who find that their previous learning and education has not been sufficient for them to begin even to grasp the subject. At suc-

cessive stages through the following months, more and more fall off for one reason or another and, at the end of the first year, the survivors may approximate to the number with which the medical school can cope.

In some countries, it would appear to many of us that the students begin to study medicine far too young. For example, in India, the usual age of entry into a medical school is 17 years. In most well developed countries, selection of medical students is of prime importance, on account of the press of entry, which far exceeds the number which can be handled. Some medical schools in America, for example, receive 20 times as many applicants as there are vacancies (Dr. Donald G. Anderson), but this is not a true picture, because many apply to more than one school. At Columbia University, there are about 2,000 applicants a year, of whom some 500 are interviewed, and about 120 admitted (Dr. A. E. Severinghaus).

All would agree that the basic purpose of selection is to choose, as far as possible, the kind of men and women who are most wanted in the medical profession, who have had an appropriate preliminary education, and who have the qualities of head and heart that go to make a good doctor. In brief, a medical student should have integrity and intelligence, and should have mastered, to a satisfactory level, the basic concepts of chemistry, physics, biology and, preferably, mathematics. He should also have had a reasonably

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The Selection of Medical Students

liberal or general education.

Most medical schools, nowadays, carry out their selections in two, and sometimes three, stages, comprising the preliminary selection, the interview, and, perhaps, a period of prolonged observation during the first year of study.

The preliminary selection

The preliminary selection is usually made by a study of the previous academic record, and of statements and testimonials from people who know the applicant. The academic side—the previous scholastic or college record—can be fairly readily assessed, according to the educational standards of the country. Dr. M. N. Weaver, dean of the faculty of medicine in the University of British Columbia, however, pointed out, what is a common experience, that ordinary requests for letters of recommendation rarely furnish the information which is desired. In British Columbia, therefore, in order to explain what is wanted to these well-intentioned, but uncomprehending people, and in order to be able to deal, to some extent quantitatively, with the information which is furnished, the writer is supplied with a questionnaire. This provides a

standardized confidential personal assessment, instead of the usual diffuse confidential letter. The referee is asked to state how long, and in what capacity, he has known the applicant, and also to write any comments he would like to add himself, in extension of the other six standard questions which he is required to answer.

The six questions, which are designed to extract an estimate of character and moral qualities, refer to powers of leadership, independence and creative power, popularity, ability to speak and communicate ideas, capacity for inspiring confidence, and ability to cooperate and to help others.

As a sample, I quote the paragraph concerned with cooperation and helpfulness:

How to use this form:

- (1) Select ONE suitable description in each section
- (2) Cross over it with an "X"
- (3) Write additional remarks in the spaces provided (See bottom of page).

The interview

Most students are, nowadays, selected after an interview, either with the dean of the medical school alone,

Some persons are highly co-operative and helpful. They go out of their way to be of service to others. At the other extreme are persons who are self-centered and who never volunteer to help anyone. In between, are those who are helpful under certain circumstances. Consider this person in comparison with others.

Extremely self-centered	Rarely gives aid freely	As helpful as the average	Helpful and co-operative	Generous to a fault	No opportunity to observe
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Remarks:

or much more commonly, by an admissions committee. At about the same time, either just before or just after, the student is sometimes submitted to a series of specific tests designed to estimate his intelligence or other qualities.

It is on these two aspects of selection—the interview and the intelligence test—that the proceedings of the World Conference were most informative.

It has to be admitted that interviews are incapable of standardization and control, and may clearly be vitiated by the prejudices of the interviewers. One man, for example, may not like red hair, or a prognathic jaw, but as yet there are no scientific ways of measuring personality; nor is there any method which, in the end, does not depend upon human judgment. Many other things, however, may emerge from an interview, such as the cultural background, which depends perhaps as much, if not more, on the family upbringing, as upon having been taught art, history and literature at school. The interview can reveal what is commonly called "motivation," an extremely important factor in determining success in a career. Why does the student wish to become a doctor? There is little doubt that, if he can honestly give the straight answer "Because I have always wanted to be," he is likely to make a good doctor, even though he may not be blessed with a full complement of erudite or other intellectual qualities.

Dr. T. A. Devine, of the United Kingdom, speaking about motivation, succinctly described certain types. There was the student who took up medicine for humanitarian purposes; there were the "Physician heal thyself" (often the would-be

psychiatrist), and the "Physician heal thy relatives" types; there were some who took up medicine because a mother, or other relatives, or they themselves had had an illness; there were those inspired by a motive which was not good, that of having power over others, and, there were those who liked the social and economic status of a doctor.

The form of the interview appears to vary considerably from one school to another, but its aim is always to assess each candidate from the viewpoint of personality. Certain interviewers undoubtedly develop the capacity to judge the suitability of a candidate, although they are quite unable to state the mental process which is involved in such a judgment. Others—expert and skilled in their particular academic field—never learn how to select. It follows, therefore, that interviewers must be carefully chosen, and that the choosing of a selector is difficult unless he has been observed at the job of selecting. A school is therefore wise to establish some means whereby each new selector serves in a temporary, provisional capacity, with other men of proved ability, before he is permanently appointed to an interviewing committee. A board of selectors provides the solution to this as well as to other problems of interviewing. Few schools would now rely upon the opinion of one man alone, but there is much variation from school to school in the size of selection boards.

Dr. Denis Brinton, of St. Mary's Hospital, London, a distinguished neuropsychiatrist and a man experienced as the dean of an important medical school, gave it as his opinion that three is probably the most suitable size for a selection board.

Even with the control which a selection board of more than one

person provides, and even though a board has had years of experience, it is bound to be fallible. Many of the moral qualities which are deemed indispensable for good doctors are precisely those which it is almost impossible to assess at entry, whatever methods are used.

The intelligence test

The solution to many of these problems of selection would be found if only there were a series of tests sufficiently precise and reliable with which to measure intelligence, aptitude, proficiency, performance, as well as other less tangible character traits, such as steadfastness, stability, interest, equanimity, public spirit, selflessness, and so on. Tests of this kind, whatever their intended scope, are usually combined with, or carried out at the same time as the candidate comes for interview. It was perhaps disturbing to learn from Dr. A. E. Severinghaus, of Columbia University, that, in that great school, they have long since passed the stage of general intelligence tests and evaluation of aptitudes, and now have available more modern psychological and psychiatric examinations, designed to appraise emotional stability, personality and motivation. Dr. Severinghaus admitted that many of these tests were still in the experimental stage, and most of his colleagues in other parts of the world who are faced with these problems of selection would doubt whether sound deductions from such an experiment could yet be made. Indeed, there are many who would question whether even the standardized and more acceptable general intelligence tests have anything more than a limited application to the selection of medical students.

For example, Sir Frederic Bartlett—the distinguished professor of experimental psychology in the University of Cambridge—gave a most revealing analysis of the results of intelligence tests carried out upon medical students. He reported that, with two well-established and well-tried reliable intelligence tests, the results had been assessed in relation to performance in the premedical and first medical examinations. The correlations were found to be so poor that it was perfectly obvious that these well-accredited intelligence tests had practically no predictive significance relative to examination successes in the first two medical examinations as conducted in Britain. Sir Frederic said, quite candidly, that to rely principally upon prediction based on the use of intelligence tests would be silly, unless by chance the alternative interpretation were correct, namely, that there was something wrong with the examinations! It was noteworthy that the prediction was lower for the second examination than for the first. For this, there might be a lot of reasons, but it was difficult to avoid the conclusion that the results of test records became smaller and smaller in significance the longer the time that had elapsed between when the scores were achieved and when they were being tested against some other criteria.

The opinion which was once widely held, that intelligence tests of this type revealed stable, relatively unalterable properties, whether of intelligence or anything else, was almost certainly wrong. Sir Frederic—a man experienced in devising and executing tests of intelligence under war conditions, for industry, for the army, for the air force, and in all manner of callings—therefore effectively and dramatically challenged

the value of such tests on the basis, not of opinion, but of statistical analysis and experimental study. However, he admitted that it was possible to select a critical score, and predict with considerable assurance, that those falling below the selected point were almost certain to fail in the medical school.

As for aptitude tests, Sir Frederic Bartlett was not prepared to say anything other than that there was very little that could be said. But if he was to say anything, he felt that aptitude tests were appropriate for allocation within a vocation, rather than for absolute selection for a vocation, especially if they were applied at a late stage and then not compulsorily but merely for advice.

The general impression left upon the conference by such papers and by the subsequent discussions, was that every so often there should be a frank review of the tests for which precision is claimed. It is to be hoped that critical opinions of this kind will stimulate schools that do not use available methods to study, and report upon their experiences in this field.

Prolonged observation

This third stage of selection is open to controversy, and is used in only certain medical schools. It may be said to occupy the whole of the first year, and to culminate in the university examination in the elementary sciences taken at the end of that time. Dr. Denis Brinton, for example, said that experience had shown that a student who failed the premedical examination after a year of study, seldom avoided worse trouble with the later preclinical and clinical examinations. He felt that, if the student had to leave the medical

school on academic grounds, it was proper for him to do so at the first available opportunity, that is, at the end of his first year. His place could then be taken by one of the other many applicants who, today, desire to receive training as a doctor. It might be objected that, in accepting a student, the school owed to him the duty of getting him through his examinations, but such an objection takes no account of the fact that it is impossible to make more than an informed guess at the academic suitability of any candidate, even with the most painstaking selection procedure. Moreover, it is justifiable, nowadays, to require an accepted student to show that he is worthy of keeping the place which he has won in the face of great competition.

General conclusions

As with all selections, whether it be for a university in general, or for a medical school, there is an upper stratum whom one must select upon purely intellectual grounds, whatever their shortcomings, faults, foibles and complexes. This top stratum—the cream of the entry, the future leaders of the profession in practice and research—tend to select themselves. Likewise, there is a lowest stratum—either lowest from the outset or later—with no positive qualities, who tend to reject themselves. It is the middle stratum which presents most difficulty, because it is in this layer than one can so easily do an injustice, and it is for the average, not the brilliant, that the sights have to be set. Anyone who is intelligent can make a competent doctor, and intelligence is perhaps the easiest thing to estimate. But it takes something in addition, something much less tangible than intelli-

The Selection of Medical Students

gence, to make a good doctor. From the middle layer comes the backbone of the profession who minister to the sick all over the world. A few of them may be educated, taught or bullied into the top layer, but most of them will be happier in the practice of their work if they do not aim too high.

It is therefore with the middle stratum that selection committees are most intimately concerned. In making the selections, the committees attempt to estimate general education, social background, intelligence, aptitude, social and emotional developments, stability, personality, motivation, and so on. What a task it is! In the final event, what are the criteria?

I cannot do better than quote the appraisal of Dr. Raymond Whitehead, the very able rapporteur of this section of the First World Conference. Speaking of general education before beginning medicine, Dr. Whitehead summarized the feelings of the conference by acknowledging the educational value (but not essential value) of Greek, Latin, history, philosophy, arts and music, at the same time emphasizing that science is in no way inferior to the humanities as an instrument of education. This really is the answer to the purist who thinks that every medical student should take an arts degree before beginning medicine. Much depends upon the manner in which a subject is presented. The classics, for example, always quoted as the perfect instrument of education, have no value whatever if they are presented to the student in such a manner that he comes to dislike the subject. "Many methods," said Dr. Whitehead, "are now used for selection; every method is found useful by somebody, but none by everyone." He gave it as his opinion that

we expect far too much of the prospective medical student. "From years of experience and reflection," he said, "we have constructed an idealised picture of the perfect student," and continued, "I have heard several descriptions of the ideal student, but none quite so brilliant as the satirical one of Professor Samson Wright (*Lancet*, 1952, 2. 534). According to Wright, "the ideal student is tall, handsome, of great personal integrity, beautifully mannered, cultured, highly intelligent, tireless worker, original, good with his hands, skillful in exposition, a good mixer, athletic, devoting his spare time to extramural activities, with good family background, and so on and so forth. That, I suggest to you, is not a medical student, but a Greek god, or at least one of the charming boys who bewitched Socrates."

"Let us remember," Dr. Whitehead said, "that students are merely ourselves when young; let us remember our own deficiencies—intellectual and moral—and be content if we see only one or two divine attributes in our prospective students. Medical students (although they do not think so) are, of necessity, young and immature, lacking the great experiences of adult life. These experiences—both sweet and bitter—are what make both a good man and a good doctor. They round off the sharp edges of learning. We who teach have had such experiences." He concluded with the appropriate phrase "In every dean's office, I should like to see in letters of gold, the following words of a great Frenchman—Maurice Chevalier—"At our age we must be reasonable."

La selección de los estudiantes de Medicina

La Primera Conferencia Mundial sobre Educación Médica, organizada por la "World

Medical Association", ha publicado las actas de sus sesiones (Oxford University Press, editor Dr. Hugh Clegg, del *British Medical Journal*) en un informativo volumen, una de cuyas secciones trata de los requisitos para la entrada a las Escuelas de Medicina en las diferentes partes del mundo, así como de los respectivos métodos que se usan en la selección de los estudiantes. En el presente trabajo, cuyo autor (Profesor de Física de la Universidad de Cambridge) fué Presidente de la dicha Conferencia, se discuten las ventajas e inconvenientes de esos métodos y los problemas específicos que se plantean de acuerdo con las condiciones prevalentes en los diferentes países.

En algunas Universidades europeas, cualquier estudiante que así lo desee puede matricularse en las Facultades de Medicina, aunque después de las primeras semanas del curso suele haber un número considerable de bajas entre los estudiantes que descubren que su educación previa o sus aptitudes son inadecuadas para el estudio de la Medicina. En otros países, sobre todo en los Estados Unidos, la selección de los estudiantes de Medicina constituye un problema de la mayor importancia debido a que el número de aspirantes excede en mucho a las facilidades existentes para atenderlos. (En la Columbia University, de New York, por ejemplo, hay 2,000 candidatos al año, los cuales se reducen, tras una selección preliminar, a unos quinientos, y de éstos sólo 120 son admitidos.) Todo el mundo está de acuerdo en que el propósito esencial de la selección es escoger a los más deseables en la profesión médica: los que no sólo poseen una educación previa adecuada, sino también las cualidades de mente y corazón que hacen un buen médico. La mayoría de las Escuelas de Medicina en los Estados Unidos e Inglaterra realizan la selección de los estudiantes de Medicina en dos o tres etapas, las cuales incluyen la selección preliminar, la entrevista y los exámenes especiales, y, a veces, un período de observación prolongada durante el primer año de estudios. La selección preliminar se basa, por lo general, en previas calificaciones escolares y en las referencias. En cuanto a éstas, las cartas confidenciales han sido substituidas frecuentemente por determinados cuestionarios presentados por las Escuelas, que son llenados por las personas que se dan como referencia. Aun así, la información obtenida por esa vía resulta a veces insuficiente, y en la mayoría de las

Escuelas se suele suplementar ésta por medio de entrevistas del candidato con el Decano o, más usualmente, con un Comité de Admisión. Antes o después de tal entrevista el candidato ha de pasar por una serie de pruebas especiales que tienen por objeto evaluar inteligencia y aptitud. Tanto el procedimiento de las entrevistas como el de las pruebas, según se destaca en las actas de la Conferencia Mundial, adolecen de graves defectos. En las entrevistas, ciertos prejuicios por parte de los interrogadores podrían interferir. También es difícil juzgar en tales entrevistas las motivaciones reales que determinan a un candidato a escoger la profesión médica, y esta motivación es un factor del que a veces depende el éxito o el fracaso de un estudiante en su carrera. En cuanto a las pruebas especiales, no solamente no tenemos aun una serie de tests suficientemente precisos y seguros para medir la inteligencia, aptitud y eficacia de un candidato sino que, según el informe de Sir Frederic Bartlett (Catedrático de Psicología Experimental de la Universidad de Cambridge), un análisis de los resultados de una serie de tales tests de inteligencia, llevados a cabo con estudiantes de Medicina, reveló que apenas había correlación alguna entre las dichas pruebas (muy acreditadas en la selección de estudiantes) y los resultados de los dos primeros exámenes durante el curso de los estudios de Medicina. Según Sir Frederic, la conclusión inevitable de este experimento es que es erróneo depender de tales pruebas creyendo que ellas revelan propiedades estables, bien sea relativas a la inteligencia u a otras cualidades. La tercera etapa de la selección, o sea la observación durante el primer año de estudios, ha sido objeto de mucha discusión. En favor de ese procedimiento se ha alegado que la experiencia demuestra que un estudiante que fracasa en el primer año raras veces recupera después lo perdido, y que sería mejor para él abandonar la carrera en la primera oportunidad. Otros opinan que, una vez admitido un estudiante después de pruebas severas, la Facultad de Medicina es en cierto modo responsable de su éxito. En general, se puede deducir de la información obtenida en dicha Conferencia que el núcleo del problema de la selección consiste en descubrir no a los mejores estudiantes (que destacan fácilmente) ni a los peores (que se eliminan por sí solos) sino a los buenos que se encuentran entre ambos extremos.

Editorials and Comments

Report to the president

Foreword

IN DECEMBER 1954, President Eisenhower appointed a 34-member Committee for the White House Conference on Education and charged it with responsibilities in carrying out "the most thorough, widespread, and concerted study the American people have ever made of their educational problems." To the Governors of 53 States and Territories, he expressed a hope that each would call a citizens' conference on education, and that the entire program would then culminate in the White House Conference on Education.

All 53 States and Territories took part in the program, with more than 3,500 local, county, regional, and state conferences on education being held prior to the White House Conference in Washington November 28-December 1, 1955. More than a half-million American people were directly involved with these studies of school needs.

The responsibility placed on the President's Committee included giving assistance, on request, to the States and Territories in holding their conferences; planning and conducting the Nation's first White House Conference on Education; and reporting to the President on ways of meeting school needs.

The summary report which follows is the opening statement of the Committee's report to the President. It is not the full report, but it summarizes the Committee's statements and principal recommendations in six areas of elementary and secondary education. It is the Committee's hope that wide distribution of this summary report will acquaint many citizens with some of the needs of their schools and encourage them to obtain and study the full report, which contains the detailed findings of the Committee, the Report of the White House Conference on Education, and a summary of the reports of the State and Territorial conferences.

The full report is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at a cost of 40 cents a copy.

Summary Statement of the Report

From the work of the Committee for the White House Conference on Education, one fundamental fact emerges: schools now affect the welfare of the United States more than ever before in history, and this new importance of education has been dangerously underestimated for a long time.

Some of the reasons for the rapidly increasing importance of the schools have been often noted. Ignorance is a far greater handicap to an

individual than it was a generation ago, and an uneducated populace is a greater handicap to a nation. This trend is obviously going to continue and quicken.

An equally important and less frequently mentioned reason for the growing importance of education is the plain fact that the schools have become the chief instrument for keeping this nation the fabled land of opportunity it started out to be. In other decades, the opportunities of America lay primarily in escape from the rigid class barriers of Europe, the availability of free land at the frontier, and the excitement of a violently growing nation, where farms often became villages and villages became cities within the span of one human life. When the frontier was closed, it would have been easy for opportunities to dry up in this nation, and for rigid class barriers to develop. It has been primarily the schools which have prevented this from happening. As long as good schools are available, a man is not frozen at any level of our economy, nor is his son. Schools free men to rise to the level of their natural abilities. Hope for personal advancement and the advancement of one's children is, of course, one of the great wellsprings of human energy. The schools, more than any other agency, supply this hope in America today. By providing a channel for ambition, they have taken the place of the frontier, and in a highly technical era have preserved the independent spirit of a pioneer nation. The schools stand as the chief expression of the American tradition of fair play for everyone, and a fresh start for each generation.

It is this fundamental conception of schools designed to give a fresh start to each generation that has broadened the ideals of education in America so much in the past 25 years. It is no longer thought proper to restrict educational programs to the skills of the mind, even though those skills remain of fundamental importance. Schools also attempt to improve children's health, to provide vocational training, and to do anything else which will help bring a child up to the starting line of adult life as even with his contemporaries as native differences in ability permit.

The most practical aspect of this new concept of education is that it calls for the most careful mining and refining of all human talents in the land—it is in itself a kind of law against waste. This new educational ideal represents the fullest flowering of the long western tradition of emphasizing the dignity of the individual. Many difficulties, of course, attend its development, but the members of this Committee believe that in essence it is noble and right and that in the long run it will prove to be one of the great strengths of America.

It is, of course, obvious that much progress has been made toward realizing this new educational ideal in the United States during the recent past. It is the belief of this Committee, however, that improvement has been nowhere near fast enough. The onrush of science has outstripped the schools. What is even more important, ideals of human conduct have in some areas advanced as rapidly as technology. Many a school which seemed good enough a generation ago now seems a disgrace to the community where it stands.

The schools have fallen far behind both the aspirations of the American people and their capabilities. In the opinion of this Committee, there

is growing resolve throughout the nation to close the gap between educational ideals and educational realities. This Committee therefore makes the following fundamental recommendations:

1. We recommend that school authorities emphasize the importance of priorities in education. This Committee has embraced with enthusiasm the concept of schools which provide a great variety of services designed to do all that is possible to fit children for fruitful adult lives, but there is real danger that in attempting to do everything a little, schools may end by doing nothing well. At present school funds are limited, and the student's time will always be limited. It is essential that schools pursue a policy of giving children first things first. In the rush for a great quantity of courses, quality must not be lost. The desire to provide education for all American children need not be inconsistent with the need to provide full opportunity for the gifted.

2. We recommend that the American people study carefully their systems of schools organization and consider measures to deny funds, other than local, to districts which do not after reasonable time, organize on an efficient basis. If the American people are asked to make sacrifices for better education, they deserve to have their funds used as efficiently as possible. This cannot be done without a great deal of reorganization in both rural and urban areas. There is no excuse for the existence of the 8,674 school districts which operate no schools. That is just one dramatic example of the need for reorganization. There is special need for studies of school systems in large cities, where most American children are now congregated. Ways must be found to decentralize large urban school systems to make them more responsive to the will of the people.

3. We recommend that local boards of education quickly assess their school building needs, and give this information to their State departments of education, and that the chief State school officers quickly relay this information to the United States Office of Education. Responsible estimates place the nation's school building need at from less than 200,000 to nearly a half-million additional classrooms by 1960. Inadequate communication between local school districts and state departments of education is the chief cause for these contradictory figures. This Committee also recommends that every community and every state do all that is economically possible to construct the buildings required, and that during such emergency periods as now exists, Federal funds also be used wherever shown to be necessary. In the richest nation in all history, there is no valid reason for the grimy, dilapidated, and overcrowded school buildings which too many children now occupy. It is an ironic truth that most Americans would not permit their children to live in a house which is as bad as the school buildings which many pupils are forced by law to attend.

4. We recommend that greater inducements of all kinds be offered to attract and retain enough good teachers, and that during the coming decade of teacher shortages, every effort be made to utilize the services of available teachers more effectively. Practical steps must be taken to change the concept of teaching as an impoverished occupation. Teaching must be made a financially comfortable profession. Every effort must be made to devise ways to reward teachers according to their ability without opening the school door to unfair personnel practices. Present salary

schedules have the effect of discouraging many able people from entering the profession. Teacher preparation programs have the reputation of requiring needless and repetitious courses. This reputation has the effect of deterring brilliant young people from becoming teachers. Salary schedules and preparation courses should be reexamined and changed where necessary to make the teaching profession more attractive to the most able young men and women. This Committee believes that the next decade and possibly two decades will be emergency periods during which the teacher shortage will grow more acute, but that there is ample reason to hope for sufficient supplies of good teachers in the long run.

5. We recommend that a new look be taken at the entire question of how much money this society should spend on education. In view of the recommendations of this Committee concerning the objectives of education, teachers, and buildings, it seems obvious that within the next decade the dollars spent on education in this nation should be approximately doubled. Such an increase in expenditure would be an accurate reflection of the importance of education in this society. The exact sources of the necessary funds will be determined more easily when there is more public agreement that the funds must be provided, and more vigorous determination to do something about it. In the opinion of this Committee, money for schools must continue to come from all three levels of government, with a portion of funds for school buildings being made available by the Federal Government on an emergency basis. Good schools are admittedly expensive, but not nearly so expensive in the long run as poor ones.

6. We recommend that every possible step be taken to encourage the interest and activity of all citizens in school affairs. Citizen advisory groups, organizations of parents and teachers, education conferences, and all other means at the disposal of the people of a democracy should be utilized to keep the schools in close contact with the people. In the final analysis, it is only the public which can create good schools and nurture them. In the long run, schools must do what the public wants, and if no strong public will is made known, schools falter. Public interest in education is aroused only by knowledge of problems and intentions, and can continue only if the public can play an active role in school affairs.

7. We recommend that a White House Conference on Higher Education, similar in scope to the program just concluded on the needs of elementary and secondary schools, be held promptly to consider the many complex problems facing, or soon to face, the Nation's colleges and universities. This Committee believes there is yet time to acquaint the American people with their imminent needs in higher education, but the time grows shorter and shorter. The flood of students now in the elementary and secondary schools is not far away from the colleges. If the people of the United States expect to attract more and more students into college, they must begin preparing for them now.

The full report of the Committee for the White House Conference on Education, of which this statement is a summary, is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at a cost of 40 cents a copy.

NEWS DIGEST

Surgeons Convene in October

For the first time student representatives from 16 medical schools will attend the 42nd annual Clinical Congress of the American College of Surgeons when it meets in San Francisco on October 8. More than 10,000 surgeons, physicians, and related medical personnel from all parts of the nation and many foreign lands will meet to discuss developments in surgical research, techniques and philosophy. The Congress has decided that education obtained through attendance at scientific programs is as valuable to students as to practicing physicians. Therefore, with the cooperation of deans of approved medical schools in the U. S. and Canada, a number of senior medical students will attend congress meetings every year on a geographic rotation basis. At the congress fellow-sponsors will meet with and advise the students daily to insure that each obtains the maximum benefit from this experience.

Polio Fellowships Available

The National Foundation for Infantile Paralysis has announced that postdoctoral fellowships are available for full time study in preparation for careers in research and academic medicine, or in the clinical fields of psychiatry, rehabilitation, orthopedics and the management of poliomyelitis and preventive medicine. Financial support of the Fellow varies and compensation to the institution is arranged according to the program undertaken. For a full academic program, tuition and fees are paid; for other programs, a sum

not to exceed \$1,250 per year including tuition. Applications for consideration in February should be received by December 1; applications for consideration in May should be received by March 1. Further information can be obtained from Miss Edith A. Aynes, Coordinator of Information, Division of Professional Education, The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

Colonel Hamrick New Director

Col. William A. Hamrick, formerly assigned to the office of the Secretary of Defense in Washington, is the new director of the department of administration at the Army Medical Service School. He succeeds Col. Frederick H. Gibbs who has been assigned to the Interagency Institute for Federal Hospital Administrators in Washington.

Nursing Grant

The National Foundation for Infantile Paralysis has made a grant of \$78,553 to the National League for Nursing to support the league's efforts to improve nursing care for patients with polio and other diseases which lead to a need for rehabilitation. This is part of the National Foundation's total appropriations in professional education of more than \$22,300,000 since 1938 to recruit and train research, medical and associate medical personnel and to improve professional standards and services. The Foundation in the past has worked closely with the League to improve nursing of polio patients through the promotion of orthopedic nursing.

MEND News

Ten schools have been selected by the Medical Education for National Defense to become affiliated with the program beginning this September. They are: Texas at Galveston, North Carolina, Creighton, Tulane, Vermont, Mississippi, College of Medical Evangelists, Louisville, Stritch and Western Reserve.

Papers for Psychosomatic Meeting

The program committee of the American Psychosomatic Society would like to receive titles and abstracts of papers for consideration for their fourteenth annual meeting in Atlantic City on May 4 and 5, 1957. The time allotted for presentation of each paper will be 20 minutes. Abstracts, in sextuplicate, should be submitted no later than December 1, 1956 to Dr. I. Arthur Mirsky, chairman, program committee, The American Psychosomatic Society, 551 Madison Avenue, New York 22, N. Y.

College of Physicians Receives Grant

A research grant of \$43,100 has been awarded to the American College of Physicians for the period of September 1, 1956 through August 31, 1957 by the Department of Health, Education and Welfare of the Public Health Service in furtherance of its project to evaluate internal medicine in hospitals. This project, "to establish a minimal standard of quality and efficiency of the practice of internal medicine in hospitals" was initiated in early 1956 by the College's Committee on Criteria for Hospital Accreditation, under the chairmanship of Dr. Arthur R. Colwell Sr., F.A.C.P., Chicago. The director of the study is Dr. Marion A. Blankenhorn, F.A.C.P., Cincinnati, who is devoting his full

time to the project. A pilot study of approximately 100 representative hospitals is being conducted by observing practice methods with particular reference to internal medicine.

New Psychiatric Fellowship Program

A seven-point fellowship program for psychiatrists, aimed at relieving the personnel problems of public mental hospitals, has been announced by the American Psychiatric Association. The program, drawing on a three year grant of \$90,000 from the Smith, Kline & French Foundation of Philadelphia, has been broadened to cover medical students, teaching centers, general physicians, psychiatric authorities from this country and abroad, as well as state hospital psychiatrists.

Research Facilities Program

A Health Research Facilities Act was passed in July by President Eisenhower which authorizes the appropriation of funds not to exceed \$30 million for each of three years to assist in the financing of the construction of facilities for research in the "sciences related to health." The act defines these as including medicine, osteopathy, dentistry and public health, and fundamental and applied sciences when related thereto. The assistance will be in the form of grants in aid to provide for construction and/or equipping of new buildings or the expansion, remodeling, alteration and/or equipping of existing buildings. A National Advisory Council on Health Research Facilities will be appointed to establish policies and approve regulations. Application forms and additional information can be obtained upon request to the Division of Research Grants, National Institutes of Health, Public Health Service, Bethesda 14, Md.

College Briefs

Albany

Grants totaling \$22,098 have been received from the Public Health Service for postgraduate teaching and training of psychiatrists. The award will make possible the increase of resident psychiatric trainees from five to eight. The funds will be administered by Dr. WILLIAM HOLT JR., professor and chairman of the department of psychiatry and Dr. WILLIAM SANDS, educational director of the college's postgraduate psychiatric training program.

Chicago Medical

A total of \$84,610 in research grants has been received. The largest awards are \$50,705 from the National Cancer Institute for cancer research projects in the department of oncology and \$25,000 from the National Institute of Mental Health.

Med. Coll. of Ga.

The Department of Health, Education and Welfare has granted a total of \$73,097 for investigations primarily in the fields of cancer, mental health, arthritis and metabolic diseases.

Medical Evangelists

A grant of \$11,500 has been received by the school of tropical and preventive medicine from the Public Health Service for continued study of poisonous and venomous fishes. Cutter Laboratories has awarded \$2,500 to the same school for a study of drugs utilized by primitive native people.

Michigan

The university hospital poliomyelitis respiratory center will be supported during the coming year by a grant of \$87,722.25 from the National Foundation for Infantile Paralysis.

The center is one of 14 such special facilities in the United States and is devoted to teaching polio victims with respiratory problems to live better and be as productive as possible within their physical abilities.

Mississippi

DR. JAMES D. HARDY, professor and chairman of the department of surgery has received a grant of \$34,500 yearly for five years from the National Heart Institute for the development and promotion of departmental research in the cardiovascular field. In addition, the department has received from the Division of Research Grants, the National Institutes of Health, \$25,000 yearly for five years to study neuroendocrine factors in peptic ulceration and to evaluate the effects of anesthesia operation and trauma upon gut absorption and motility. The Office of the Surgeon General, Department of the Army has renewed for one year a \$39,902.50 grant for study of patient reaction to anesthesia, operation and accidental trauma. A total of \$17,875 in other grants were also received.

North Carolina

An estimated \$300,000 building program for the psychiatric center of Memorial Hospital is scheduled to begin late this year. Fifty per cent of the funds required for the project will be supplied by the Federal government through the North Carolina Medical Commission and the remainder will come from the state.

Northwestern

DR. JOHN A. D. COOPER has been appointed assistant dean of the medical school. Dr. Cooper has been a member of the school's faculty since 1943 and was made an associate professor of biochemistry in 1952.

He is at present in Brazil on a teaching mission.

Research grants totaling \$50,000 have been received from the Public Health Service. The largest grant of \$13,700 goes to Dr. SAMUEL M. FEINBERG, professor of medicine, to study allergies.

New York Medical Coll.

Dr. DAVID LEHR has been appointed director of the newly combined department of physiology and pharmacology. He was recently made a member of the Poison Control Board of the New York City Health Department. For the past two years he has served as director of the department of physiology.

NYU-Bellevue

An honors program and merit scholarships for the encouragement and support of students who wish to prepare for careers of investigation and teaching in medicine are now being offered through funds provided by an institutional grant from the Commonwealth Fund. The honors program, open to 12 to 15 students in each class, will begin this September. The merit scholarships will be awarded annually beginning in September 1957.

Oklahoma

Dr. JOHN A. SCHILLING has been appointed the first full time head of the department of surgery. He was assistant professor of surgery at the University of Rochester School of Medicine and Dentistry. Excavation work is now under way for the new \$193,000 speech and hearing building.

Stanford

Former president Herbert Hoover has announced the establishment of a "Stanford Medical Center Fund," the largest effort of its kind ever undertaken in the West. The first stage objective is to raise \$21,950,000 for development of a medical center based on a new concept of education for medicine. The center would be located on the Palo Alto campus in

order to bring it into a true university environment and closer relationships with the liberal arts and sciences. A revised curriculum would be planned to allow for more breadth and flexibility of education and afford opportunities for student research. Allocated from this fund would be \$1,000,000 for improving the present hospital in San Francisco, which is seen as a potential facility for supplemental medical education and research. Hoover is a trustee of the university and alumnus. Funds already available total nearly \$4,000,000.

SUNY—Brooklyn

Dr. JOSEPH B. PINCUS has been appointed full time professor of pediatrics and director of pediatrics at the Jewish Hospital of Brooklyn. Until recently Dr. Pincus has been clinical professor and part-time chief of pediatrics at the hospital.

SUNY—Syracuse

Dr. MARC H. HOLLENDER, formerly associate professor of psychiatry at the University of Illinois and staff member of the Institute for Psychoanalysis in Chicago, has been appointed professor and chairman of the department of psychiatry. Dr. Hollender succeeds Dr. EDWARD STAINBROOK.

Dr. RICHARD H. PHILLIPS of the department of psychiatry has received notification of a \$25,000 research grant for the coming year from the U. S. Public Health Service which will go to support psychiatric teaching personnel and equipment.

Dr. PAUL F. WEHRLE, assistant professor of pediatrics, has received notification of a three-year research grant from the Public Health Service. The grant for the first year is for \$21,534 and will cover investigation into how and why polio virus is transferred from human to human.

Dr. WILFRED W. WESTERFELD has been appointed acting dean effective September 1. Until the appointment of a successor to the present dean, Dr. WILLIAM R. WILLARD, who has

resigned to become dean of the University of Kentucky Medical School. Dr. Westerfeld has been professor and chairman of the department of biochemistry since 1945.

Temple

Plans to establish an Institute of Direct Analysis to employ a specialized approach to the treatment of schizophrenia have been made. The Rockefeller Brothers Fund have pledged a total of \$150,000 to be distributed over a three year period to establish the institute.

Dr. O. SPURGEON ENGLISH, head of the department of psychiatry, will be the director. Dr. JOHN N. ROSEN, New York psychiatrist, will direct the training program. Dr. Rosen, who recently has been appointed associate professor of psychiatry at the medical center, bases his treatment program on a method of sustained psychotherapy in a controlled environment. An important part of the Institute program will involve research to describe, define and evaluate the techniques used.

Dr. JOHN S. MCGAVIC has been appointed professor of ophthalmology. Dr. McGavic recently resigned his post as pathologist and chief of laboratories at the Wills Eye Hospital. Dr. ROGER W. SEVY has been promoted to professor of pharmacology.

Tennessee

A Children's Convulsive Seizure Clinic has been opened in the pediatric clinic of the John Gaston Hospital. The director is Dr. JAMES G. HUGHES, professor of pediatrics. The

new clinic will be limited to patients of the hospital and will serve two purposes. . . . to provide comprehensive diagnosis and treatment for children with convulsive seizures, and intensive study of the affected children.

U. of Texas-Galveston

Dr. JOHN B. TRUSLOW has been made executive director and dean of medicine. Dr. D. BAILEY CALVIN is dean of students and curricular affairs.

Toronto

Prof. J. C. B. GRANT has retired as head of the department of anatomy. He has been succeeded by Prof. J. W. A. DUCKWORTH. Dr. A. J. RHODES, formerly director of the Research Institute, Hospital for Sick Children, has been appointed director of the reorganized School of Hygiene.

U. of Washington

Dr. ROBERT A. ALDRICH, formerly associate professor of pediatrics at the University of Oregon has been named head of the department of pediatrics.

Yale

Dr. DAVID WEINMAN II, associate professor of microbiology, has been granted a Fulbright Fellowship which will enable him to conduct research at Makerere College in Kampala, Uganda, East Africa. Dr. Weinman is interested in tropical medicine and pathogenic protozoa.

Audiovisual News

Motion Picture Films in the Teaching of Medical History

In these days when medical students are hard-pressed to master the innumerable technical aspects of their chosen profession, it is not surprising that they are reluctant to devote time to such "luxuries" as medical history. Yet if medical schools are to continue to foster the broad social perspective and high ideals that have characterized the profession through the ages, some counterbalance is needed. Opportunities of this nature, and in enjoyable form, can be found through acquaintance with the great men of past generations and with their contributions to medical and human progress.

During the past 25 years a variety of motion picture films have been made depicting the lives and contributions of great physicians. Most of these have been directed toward the lay public which has an evident thirst for knowledge of this nature. Often, however, they carry messages that are of equal interest to medical students who, as yet, are not far removed from the lay public. And some would gladden the heart of even a well-seasoned physician. Because this group of films has not previously been brought together in usable form, the approximately 50 historical films and several other miscellaneous ones suitable for medical students have been listed below along with subject and biographical

indexes. It is the hope of the Committee on Audio-Visual Aids that members of the profession will notify the Committee of any other films which might be, or become, available so that it can have on file as complete information as possible. The Committee is glad to serve as a center of information in this important subject and to assist whenever possible in the procurement of films for local use.

Motion picture films dealing with the history of medicine are particularly well suited to those students who have recently entered upon their medical studies. Little effort is needed on their part which might distract from the heavier subjects of study at the time. Furthermore, the films often afford a relaxing change from the more strenuous routine of the week. If they can be supplemented with a few well-chosen words by someone familiar with the story, the hour can be very enjoyable indeed. And once introduced to the delights of medical history, some will no doubt be interested in delving deeper during succeeding years. As a means of developing an understanding of the forces and qualities that have made medicine the profession of highest public esteem, the history of medicine deserves some small place each year in the calendar of all medical schools. EDWARD M. BRIDGE University of Buffalo, June 15, 1956.

MEDICAL HISTORY FILMS Indexed by Principle Character

Biography	Reference	
	Numbers	
Abel, John J.....	22	Beaumont, William..... 46
Banting, Sir Frederick G.....	53	Blackwell, Elizabeth..... 39
		Bruce, David and Mary..... 54
		Curie, Marie (Madam)..... 25, 40

DaVinci, Leonardo.....	23	Welch, William H.....	60
Ehrlich, Paul.....	27	Wiley, Harvey.....	57
Eijkman, Johann.....	26		
Ewing, James.....	13	Miscellaneous	
Fleming, Sir Alexander.....	13, 50	Arrowsmith.....	3
Freud, Sigmund.....	42	Back to Normal.....	5
Gamble, James L.....	16	Blood Transfusion.....	6
Goldberger, Emanuel.....	4, 20	Daybreak in Udi.....	8
Halsted, William S.....	11	The Deaf, Education for.....	56
Harvey, William.....	59	Deafness, Triumph Over.....	15
Jacobi, Abraham.....	52	Death Rides the Wagon.....	9
Jenner, Edward.....	47	DDT, Story of.....	45
Maass, Clara.....	34	Doctor in Industry.....	12
McCollum, Elmer V.....	58	Eyes of Science.....	17
McDowell, Ephraim.....	35	Highland Doctor.....	21
Minot, George R.....	19	Man Against Microbes.....	28
Morton, William T. G.....	1, 2, 7, 10	Med. Hist. in Clinical Teaching.....	30
Pasteur, Louis.....	24, 29, 37, 38, 48, 49	Men in White.....	32
Pinel, Philippe.....	14, 43	Men of Medicine.....	31
Reed, Walter.....	61	Night Call.....	33
Semmelweis.....	51, 55	One Man's Story.....	36
Van Leeuwenhoek.....	44	The Seeing Eye.....	41

MEDICAL HISTORY FILMS

Indexed by Subject

Subject	Ref. Nos.		
Anesthesia.....	1, 2, 7, 10	Pediatrics.....	52
Anthrax.....	48	Pellagra.....	4, 20
Antibiotics, discovery.....	13, 50	Penicillin, discovery.....	13, 50
Artists as Anatomists.....	23	Pernicious Anemia.....	19
Cancer hospitals.....	13	Pharmacology.....	22
Chemotherapy.....	27	Physical examinations in former times.....	30
Child-bed fever.....	51, 55	Practice of medicine.....	31, 32, 33
Children's diseases.....	52	Practice of medicine, rural.....	21, 36
Cholera.....	9	Practice of medicine, industrial.....	12
Circulation of Blood.....	59	Psychiatry, early.....	14, 43
Cocaine, Introduction of.....	11	Psychiatry, Freud.....	42
Deafness.....	15, 56	Puerperal fever.....	51, 55
DDT.....	45	Radium.....	25, 40
Diabetes.....	53 (19)	Rehabilitation.....	5 (15, 41, 56)
Ether.....	1, 2, 7, 10	Research on human beings.....	3
Fluid regulation.....	16	Rural practice of medicine.....	21, 36
Food and Drug Laws.....	57	Seeing Eye.....	41
Gastric juice.....	46	Sleeping sickness, African.....	54
Hydrophobia.....	29, 49	Small pox.....	47
Industrial medicine.....	12	Stomach, observations.....	46
Infectious disease.....	3, 24, 28	Surgery, first successful abdominal operation.....	35
Insect poison.....	45	Syphilis and "606".....	27
Insulin.....	53	Transfusions.....	6
Johns Hopkins School of Medicine, Founding of.....	60	Vaccinations (Small pox).....	47
Liver extract.....	19	Women doctors.....	39
Microscope.....	17, 44	Yellow fever.....	34, 61
Missionary doctor.....	8	Vitamins, discovery	
Nitrous Oxide.....	10	Vitamin A.....	58 (26)
Obstetrics.....	8, 51, 55	Vitamin B.....	26
Operation, first successful.....	35	Pellagra.....	4, 20

FILM DESCRIPTIONS AND REVIEWS

1. The Advent of Anesthesia

9 min., b&w., sd., 16 mm., 1946. A Rating.
Of equally high quality to No. 7 but greatly reduced in length. **Producers & Distributors:** Mallinckrodt Chemical Works, 72 Gold St., New York 8, N. Y., N/C.

2. Anesthesia

10 min., b&w., sd., 16 mm., 1939. C Rating.

A well narrated film but directed more toward lay than medical audiences. **Producers:** MGM; **Distributors:** TFC, lease.

3. Arrowsmith

13 min., b&w., sd., 16 mm., 1931. Not reviewed.

A dramatization of Sinclair Lewis' novel by this name with emphasis on the epidemiological studies of the young physician and in particular on the difficulties in the way of scientific experiments on human beings. **Producers:** MGM; **Distributors:** TFC, lease.

4. A Way in the Wilderness

10½ min., b&w., sd., 16 mm., 1941. Not reviewed.

Describes the efforts of the U. S. Public Health Service, led by Dr. Emanuel Goldberger, to find the cause and cure of pellagra. Similar to No. 20. **Producers:** MGM; **Distributors:** TFC, lease.

5. Back to Normal

15 min., b&w., sd., 16 mm., 1944. Not reviewed.

A stirring picture of Roehampton Hospital where artificial limbs are fitted and the disabled are trained to use them, for a return to a normal life. **Distributors:** B.I.S., \$2.50.

6. Blood Transfusion

17 min., b&w., sd., 16 mm., 1947. Not reviewed.

The interesting story of how doctors and scientists of many nations made possible modern methods of preserving blood and using it far from the place where the blood was donated. **Distributors:** B.I.S., \$2.50.

7. The Conquest of Pain

20 min., b&w., sd., 16 mm. A Rating.
An excellent dramatization of the discovery and first public demonstration

of ether as an anesthetic. The characters are well portrayed and the scenes admirably arranged. The controversy for the honor of the discovery is introduced and is suitable for stimulating discussion over the rights of discoveries of new agents in the health fields. Suitable for student and lay audiences. **Producers:** Paramount; **Distributors:** Am. Museum of Natural History, Central Park & 79th St., New York 24, N. Y.

8. Daybreak in Udi

45 min., b&w., sd., 16 mm., 1949. Not reviewed.

An Academy Award film describing the building of a maternity home in Nigeria through the initiative and efforts of the natives. Local superstitions and witch-doctors opposed the development, but through the efforts of the District Officer success was finally achieved. **Distributors:** B.I.S., \$6.

9. Death Rides the Wagon

25 min., b&w., sd., 16 mm. Not reviewed.

A historical account of cholera epidemics and progress toward their control. **Producers & Distributors:** Dow, N/C.

10. The Discovery of Anesthesia

25 min., b&w., sd., 16 mm., 1956. A Rating.

A longer film than No. 7 but also of good quality. It shows not only the first demonstration of ether anesthesia but also the early observations on nitrous oxide and an account of confirmatory reports from England and Scotland. Suitable for lay and student audiences. **Distributors:** Young America Films.

11. Doctor Impossible

25 min., b&w., sd., 16 mm., 1955. A Rating.

The film shows the state of surgery shortly after the discovery of volatile anesthetics and at the time when Lister's spray with carbolic acid was accepted antiseptic practice. Dr. William S. Halsted and associates experimented on themselves with cocaine, became addicted, and only by herculean efforts did Dr. Halsted recover and become the leading surgeon in the new Johns Hopkins School of Medicine. The story is excellently presented and should interest lay, student and professional audiences.

Because of the close relationships between the two men, this film follows quite naturally that on William H. Welch, No. 60. **Producers & Distributors:** Dow, N/C.

12. Doctor in Industry

60 min., b&w., sd., 16 mm., 1946. Not reviewed.

The history of industrial medicine from the opening of this century to the present day. Contrasts the old and the new in industrial medicine—the changes in equipment, the higher status of the doctors, the attitude of industry—culminating in the rehabilitation program for returned veterans. **Producers:** Jam Handy; **Distributors:** General Motors Corp., 3044 W. Grand Blvd., Detroit 2, Mich., N/C.

13. Dr. James Ewing

25 min., b&w., sd., 16 mm., 1955. C Rating.

The film describes the attitude toward cancer and cancer hospitals that existed in the latter part of the 19th century, and the work of Dr. Ewing in changing this attitude and setting in motion studies and researches into the cause and cure. The story is overly dramatized and maintains an aggressive, pugnacious atmosphere throughout. The basically good story also suffers from tedious advertising at both ends and in the middle. Suitable for lay and student audiences. **Distributors:** Memorial Hospital, New York, N. Y., N/C.

14. Dr. Pinel Unchains the Insane

25 min., b&w., sd., 16 mm., 1956. A Rating.

An excellently dramatized account of the conditions in mental hospitals in Paris at the time of the French Revolution and of the dedicated work of a lone physician in improving the situation. Suitable for lay and student audiences. **Distributors:** Young America Films.

15. Education for the Deaf

52 min., b&w., sd., 16 mm., 1946. Not reviewed.

Until recently, deaf children were also dumb because they could not hear any sound to imitate. Now they are sent to special free schools where they are taught to speak and use what hearing they may have, augmented with hearing aids. This film shows the sufferers, encouraged through this therapy, how to mix more freely and grow up as normally as possible. **Distributors:** B.I.S., \$6.

16. Extracellular Fluid

b&w., sd., 16 mm. Not reviewed.

Dr. James L. Gamble, the pioneer in studying body fluids, presents a lecture on his favorite topic and in his incomparable manner. The film is of most value for its biographical elements, but medical students and physicians will also learn from the subject matter. **Producers & Distributors:** Mead Johnson, N/C.

17. Eyes of Science

45 min., b&w., si., 16 mm., 1930. Not reviewed.

The film portrays Galileo developing his early telescope, Leeuwenhoek making the first microscope, and the usefulness of the principles of optics today. **Producers & Distributors:** Bausch and Lomb, Rochester 2, New York, N/C.

18. The First Major Test of Penicillin

25 min. Not reviewed.

The film describes the discovery and production of penicillin. "April 1, 1943, the dramatic moment when a yellow-brown powder becomes the hope of millions of sick and wounded. Shows the place of scientific developments in modern medicine, and its influence in both peace and war." **Distributors:** Young America Films.

19. The Gift of Dr. Minot

25 min., b&w., sd., 16 mm. B Rating.

The story of Dr. Minot's persistent work to help patients with pernicious anemia. After many failures his efforts were finally rewarded, and in the end the discovery was awarded the Nobel Prize. In the course of the story, the newly discovered drug insulin arrives in time to preserve Dr. Minot's own life for many years. The basic elements of the story are well presented but the film suffers from poor acting in the minor characters and over-dramatization in spots. Suitable for lay and student audiences. **Producers & Distributors:** DuPont, N/C.

20. G. for Goldberger

10½ min., b&w., sd., 16 mm., 1941. Not reviewed.

The story of Emanuel Goldberger and his search for the cause of pellagra in the diet of the southern States. Similar to No. 4. **Producers & Distributors:** DuPont, N/C.

21. Highland Doctor

22 min., b&w., sd., 16 mm., 1944. Not reviewed.



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22. John J. Abel

75 min., b&w., sd., 16 mm., C Rating.

A lecture given by Dr. Abel himself after his retirement from active teaching at Johns Hopkins University. An outstanding American pharmacologist describes and demonstrates some of the developments in experimental procedure and advances in pharmacology in which he participated. The film will be appreciated most by those who knew Dr. Abel and his work. Suitable for staff and graduate students; of less interest to medical students. It is unnecessarily long for the story that is told. **Producers & Distributors:** Lilly, N/C.

For biography of Dr. Abel see Lamson, P., *Bull. Johns Hopkins Hosp.* 68: 119-157, 1941.

23. Leonardo DaVinci

68 min., color, sd., 16 mm. Not reviewed.

An excellent biographical film. The anatomical and medical features make up only a relatively small proportion of the whole. However, the remarkable insight and ingenuity of DaVinci in fields of science and art make this a film of general educational value. **Distributors:** Pictura Films Corp., \$50.

24. Louis Pasteur—Man of Science

30 min., b&w., sd., 16 mm., 1951. A Rating.

An excellently presented story of the highlights of Pasteur's work. The acting is of high quality and the experiments demonstrated are clear and understandable. More emphasis is placed on scientific work and discoveries than on Pasteur as a man. Produced in France, the narration is in English and in good taste. Suitable for student audiences. **Distributors:** Sterling Films, Inc., 316 W. 57th St., New York 19, N. Y., \$5.

25. Madam Curie

24 min., b&w., sd., 16 mm., 1943. B Rating.

Depicts the work of Madam Curie and her husband Pierre in extracting radium from pitchblend and eventually purifying it as a new element. Both the story and characters are well presented. Suitable for lay and student groups. **Producers:** MGM; **Distributors:** TFC, lease.

26. The Magic Alphabet

10 min., b&w., sd., 16 mm., 1946. A Rating.

The film describes the characteristic disease that occurred in Java and was known as beri-beri. Dr. Johann Eijkman searched in vain for a microbe to explain the symptoms and by accident discovered that the cause lay in deficient food. Later discoveries of Vitamin A and D are also described briefly. The film is an excellent one and is suitable for lay and professional groups. **Producers:** MGM; **Distributors:** TFC, lease.

27. Magic Bullets

30 min., b&w., sd., 16 mm., 1943. A Rating.

This is an excellent dramatization of the work of Paul Ehrlich in developing the principles of chemotherapy. His struggles to obtain support, the long list of unsuccessful and partially successful experiments, and the final success are shown in a manner that should be of interest and value to medical students. **Producers:** Warner; **Distributors:** USPHS, N/C.

28. Man Against Microbes

10 min., b&w., sd., 16 mm., 1932. C Rating.

A series of historical episodes in the studies on infectious diseases including the works of van Leeuwenhoek, Pasteur, Lister, Koch and Behring. **Producers & Distributors:** Metropolitan Life Insurance Co., 1 Madison Ave., New York 10, N. Y., N/C.

29. Man's Greatest Friend

10 min., b&w., sd., 16 mm., 1938. Not Reviewed.

The story of Pasteur's contribution to hydrophobia. **Producers:** MGM; **Distributors:** TFC, lease.

30. Medical History in Clinical Teaching

27 min., b&w., si., 16 mm., 1940. D Rating.

A panorama of different approaches to physical examination of patients from the time of Hippocrates to Sir James McKenzie and including the electrocardiograph. The settings depict the costumes and furniture of the times. The film is old, the acting amateurish, and the whole rather unimpressive. **Distributors:** Library of Coll. Phys. & Surg., Phila.; Dept. Cardiology, Women's Med. College of Pa., Phila.; Canadian Film Inst., 172 Wellington St., Ottawa, Ont. (for Can.)

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31. Men of Medicine

15 min., b&w., sd., 16 mm., 1943. Not reviewed.

A description of medical practice today. **Distributors:** McGraw-Hill Book Co., Inc., 330 West 42nd St., New York, 18, N. Y.

32. Men in White

15 min., b&w., sd., 16 mm., 1934. Not reviewed.

A story illustrating the training of a young physician and the limitations imposed by advanced studies on personal and family security. **Producers:** MGM; **Distributors:** TFC, lease.

33. Night Call

25 min., b&w., sd., 16 mm., 1954. Not reviewed.

Dramatization of the life of a present-day practicing physician. **Producers & Distributors:** DuPont, N/C; A.M.A.

34. No Greater Love

25 min., b&w., sd., 16 mm., 1952. Not reviewed.

Describes the work of Clara Maass in the experiments on yellow fever in Cuba under Gorgas. **Producers & Distributors:** DuPont, N/C.

35. One Against the World

11 min., b&w., sd., 16 mm., 1941. A Rating.

An excellent dramatization of a successful major abdominal operation before the days of anesthesia. Dr. Ephraim McDowell persisted to success in spite of threats to his life from the Kentucky townspeople. The film is particularly appropriate for showing before one that describes the early use of ether (No. 1, 2, 7, 10). Suitable for lay and student audiences. **Producers:** MGM; **Distributors:** TFC, lease.

36. One Man's Story

26 min., b&w., sd., 16 mm., 1950. Not reviewed.

The story of the life work of the British Medical Officer for Stockton-on-Tees between 1924 and 1929. **Distributors:** B.I.S., \$3.75.

37. Pasteur, Benefactor

22 min. Not reviewed.

The leading role is played by Paul Muni. **Producers:** Pict. Films.

38. Pasteur's Legacy

34 min., b&w., sd., 16 mm., 1946. Not reviewed.

Depicts the great scientist in his many contributions to mankind. **Producers:** Les Films Minerva; **Distributors:** Modern Film Corp., 729 7th Avenue, New York 19, N. Y.

39. Petticoat Doctor

25 min., b&w., sd., 16 mm. Not reviewed.

Describes the struggles of Elizabeth Blackwell to become one of the first successful women physicians. Suitable for lay and student groups. **Producers & Distributors:** DuPont, N. C.

40. The Romance of Radium

10 min., b&w., sd., 16 mm., 1937. C Rating.

A narrated film showing the various steps in the recognition of radioactivity, the isolation of radium, and its usefulness in the current times. It gives a satisfactory historical perspective that only in a small way duplicates No. 25—Madam Curie. **Producers:** MGM; **Distributors:** TFC, lease.

41. The Seeing Eye

21 min., b&w., sd., 16 mm., 1946. Not reviewed.

An account of the training of dogs to lead the blind. **Producers:** Warner; **Distributors:** TFC, lease.

42. Sigmund Freud

45 min. Not reviewed.

A collection of amateur and professional films made of Dr. Freud in Vienna, Berlin and Paris 1925-9. Dr. Philip Lehmann has recorded commentaries to accompany the film. It is available only by special arrangement and for strictly professional groups. It has not been made available for showing to medical students. **Distributors:** Sigmund Freud Archives, 285 Central Park West, New York 24, N. Y. Special arrangements necessary.

43. Stairway to Light

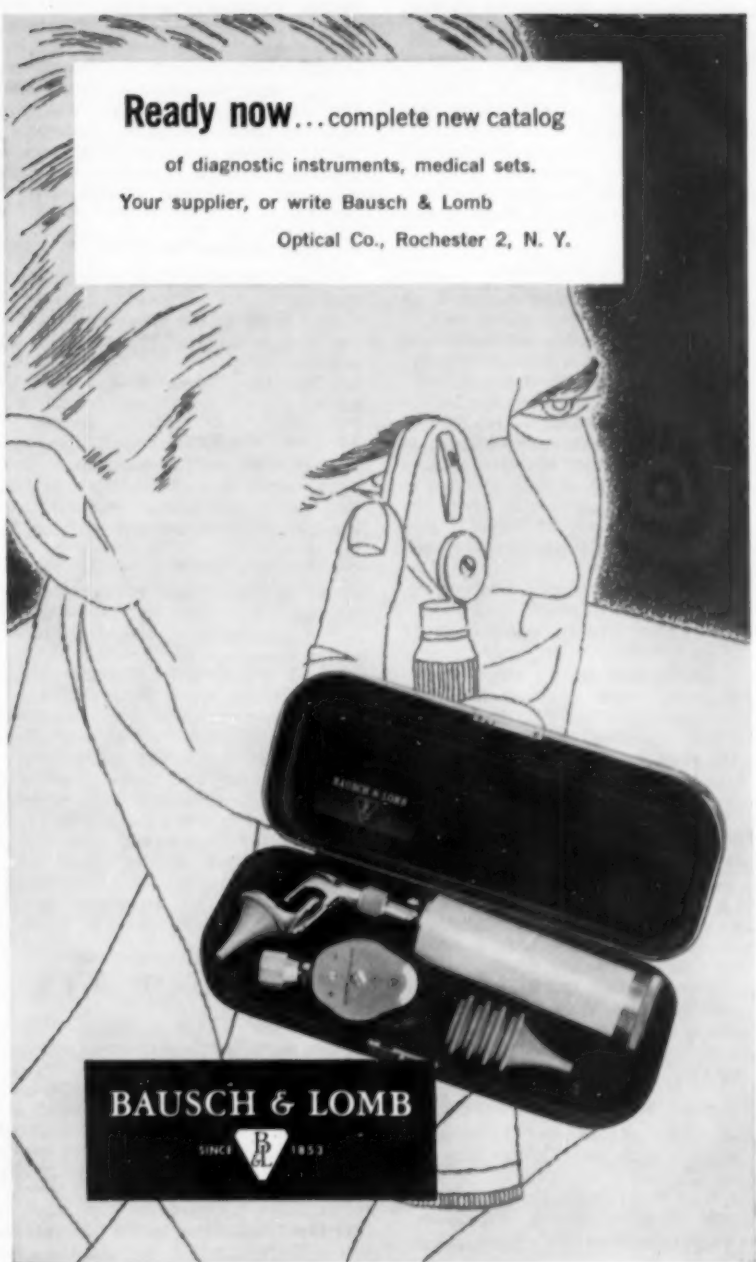
10 min., b&w., sd., 16 mm., 1946. A Rating.

The story is essentially the same as No. 36—Dr. Pinel Unchains the Insane except for shortening which has been accomplished in excellent taste. **Producers:** MGM; **Distributors:** TFC, lease.

44. The Story of Antony van Leeuwenhoek

83 min., b&w., si., 16 mm., circa 1932. Not reviewed.

Illustrates many of the contributions of Antony van Leeuwenhoek, the father of bacteriology and protozoology, in crystallography, lens and microscope




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making and observations on microscopic life. For students of general science. **Producers:** Multifilm, The Netherlands; **Distributors:** Johns Hopkins.

45. The Story of D.D.T.

25 min., b&w., sd., 16 mm., 1945. Not reviewed.

The film tells the story of D.D.T. from the time of its discovery in 1870 on through its large-scale production and use during World War II. **Distributors:** B.I.S., \$3.75.

46. The Story of Dr. Beaumont

25 min., b&w., sd., 16 mm., 1956. A Rating.

An excellent portrayal of the young army doctor who carried on classical studies of the physiology of digestion in the human stomach during the early years of the 19th century. The subject of the experiments, Alexis St. Martin, is shown at the time of his unfortunate gunshot wound and during the many years he lived in association with Dr. Beaumont. Suitable for lay, student, and professional groups. **Producers & Distributors:** Dow, N/C.

47. The Story of Dr. Jenner

10 min., b&w., sd., 16 mm., 1940. B Rating.

A dramatization of the work of Dr. Edward Jenner with cow-pox and vaccination against small pox. It is well staged and narrated. The film is particularly suitable for lay audiences but should also interest medical students. **Distributors:** TFC \$2.35.

48. The Story of Pasteur—Anthrax

17 min., b&w., sd., 16 mm. C Rating.

An excerpt from the feature film produced by Warner Bros. Pictures. Edited by the Commission on Human Relations.

Deals with Pasteur's crusade to establish his microbe theory of disease, the opposition to him of the French Academy of Medicine, and his successful struggle to institute a serum treatment for anthrax. **Producers:** Warner; **Distributors:** TFC, lease.

49. The Story of Pasteur—Hydrophobia

17 min., b&w., sd., 16 mm. D Rating.

A melodramatic, sentimental film describing Pasteur's work with hydrophobia. The Hollywood staging is inappropriate to the subject. **Producers:** Warner; **Distributors:** TFC, lease.

50. The Story of Penicillin

9 min., b&w., sd., 16 mm., 1946. A Rating.

Shortly before his death, Sir Alexander Fleming reenacted the events leading to the discovery of penicillin. The story is organized and filmed in excellent taste, and it is a delight to see the principle actor in his native habitat. The film is particularly suitable for medical and graduate students but would also be enjoyed by lay and professional groups. **Producers:** Imperial Chemical Industries; **Distributors:** Pfizer, \$4.

51. That Mothers May Live

10 min., b&w., sd., 16 mm., 1939. B Rating.

The story is the same as No. 55 but the film is shorter. The acting is good but the narrative is somewhat sentimental. **Producers:** MGM; **Distributors:** TFC, lease.

52. That They May Live

25 min., b&w., sd., 16 mm. Not reviewed.

The story is that of Abraham Jacobi and his interest in diseases of children. **Producers & Distributors:** DuPont, N/C.

53. They Live Again

11 min., b&w., sd., 16 mm., 1939. C Rating.

The film presents the essential facts of the Toronto experiments of Dr. Banting and associates leading to the isolation and purification of insulin. The accompanying narrative is overdrawn and almost melodramatic. The film is most suitable for secondary school classes, but will bring the story to more advanced students as well. It is appropriately shown before *The Gift of Dr. Minot* (No. 19) since in the latter film the miracle of insulin to Dr. Minot himself is portrayed as a secondary subject. **Producers:** MGM; **Distributors:** TFC, \$2; A.M.A. \$1.

54. Tracking the Sleeping Death

10 min., b&w., sd., 16 mm., 1939. B Rating.

Describes the assignment of David Bruce to Africa to search out the cause of sleeping sickness. He finds trypanosomes in spinal fluid from a sick native and eventually also in the local tse-tse flies. The film is well acted and narrated. Suitable for college and medical students. **Producers:** MGM; **Distributors:** TFC, lease.

55. The Tragic Hour of Dr. Semmelweis

25 min., b&w., sd., 16 mm., 1956. B Rating.

This is the story of a young Viennese

physician who is dismissed from a hospital staff because of his efforts to prevent child-bed fever through improvement in cleanliness. Before bacteria were known to cause many diseases, he recognized the relationship to unsanitary conditions and fought against the superstition and ignorance of his contemporaries. **Distributors:** Young America Films.

56. Triumph over Deafness

20 min., b&w., sd., 16 mm., 1946. Not reviewed.

A presentation of the methods by which deaf children are taught to speak. **Distributors:** B.I.S., \$2.50.

57. Triumph Without Drums

10 min., b&w., 16 mm. A Rating.

During and following the Civil War food poisoning, due to unsatisfactory canning methods and preservatives, was relatively common. Harvey Wiley recognized the situation and devoted his efforts to the establishment of legal controls and supervision of the food and drug industries. The acting is good and the narration in keeping with the subject. Suitable for lay and student audiences. **Distributors:** TFC \$1.50.

58. Vitamin A in Human Nutrition

40 min., b&w., sd., 16 mm. Not reviewed.

The film is a recorded lecture by Dr. Elmer V. McCollum on a subject to which he contributed pioneer work. It succeeds in preserving Dr. McCollum, the man, for posterity. An appreciation of his work can also be obtained from the delightful autobiographical account of his early years printed as the Prefatory Chapter in Annual Reviews for Biochemistry. Vol. 22, 1953. Suitable for medical and graduate students. **Producers & Distributors:** Mead Johnson, N/C.

59. William Harvey and the Circulation of the Blood

40 min., b&w., si., 16 mm., 1928. D Rating.

This film was made at the tercentenary celebration of the work of William Harvey on the circulation of the blood. It brings together a group of photographs, memorabilia, costumes, and demonstrations of the type used by Harvey. The film is old, noisy, tedious in places and not very effective. It can be used as a supplement to a lecture but by itself it is rather ineffective and its infirmities annoying. **Producers:** Royal College of Physicians, London;

Distributors: Johns Hopkins, N/C; A.M.A. \$3.00.

60. William H. Welch

11 min., b&w., sd., 16 mm., circa 1932. A Rating.

A delightful film recording of reminiscences by the leading spirit in the founding of the Johns Hopkins School of Medicine. In it "Popsy" Welch describes his travels and studies in Germany during the latter half of the 19th century, the organization of Johns Hopkins, and his outlook toward the future. Suitable for student and professional audiences.

The picture removes Dr. Welch from the category of legendary figures and preserves him as an inspiring leader in the medical profession. **Producers:** MGM; **Distributors:** N. Y. Academy of Medicine, 2 E. 103rd St., New York; Medical Audio-Visual Institute of the AAMC, 185 N. Wabash Ave., Chicago 1, Ill., \$2.

61. Yellow Jack

29 min., b&w., sd., 16 mm., 1938. A Rating.

The story describes the accident that led Walter Reed to consider mosquitoes as a carrier of yellow fever, the experiments which he conducted, and the final results. The acting is excellent and the story is presented in good taste. Suitable for lay, student and professional audiences. **Producers:** MGM; **Distributors:** TFC, lease.

KEY TO MAIN SOURCES

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Two New Films in "Living Human Cells in Culture" Series

The teaching films "Microglia" and "Oligodendroglia" were premiered in Denver on August 2. The occasion was a film production workshop held in conjunction with the tissue culture workshop held at the University of Colorado School of Medicine. The workshop was attended by American and British tissue culturists.

"Microglia" and "Oligodendroglia" are the second and third films completed in the series being produced for the Medical Audio-Visual Institute under the authorship of Dr. C. M. Pomerat, Director of the Tissue Culture Laboratory of the University of Texas — Medical Branch. The first film completed was "The Hela Cell Strain" of which 75 prints have already been made to satisfy the requests of the American Medical schools and overseas distribution.

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Book Reviews

The Neuroses in Clinical Practice

Henry P. Laughlin, M.D., W. B. Saunders Company, Philadelphia London, 1956. 802 pp. with appendix, glossary and index.

The author states in the preface to this book that his aim is to present the neuroses from the standpoint of diagnoses, symptoms, psychodynamics and treatment as encountered in clinical practice. The first chapter is on the general problem of anxiety and there follow chapters on the various neurotic reactions: anxiety, phobic conversion, dissociative, depressive, fatigue, hypochondriac, obsessive-compulsive and post trauma. Included also are chapters on defense mechanisms and gains of emotional illness.

There is a unique glossary which is valuable and the references following each chapter are well selected.

This work is a rather standard treatment of neurotic reactions with emphasis on a wealth of clinical examples. The discussion on the nature and origins of anxiety is particularly helpful and might well have provided a focus for the other chapters without the constant repetition which occurs in them.

There are many helpful and interesting points throughout this book but the author's verbose style and personal references seriously detract from their effectiveness. The book written in a more comprehensive style would probably appeal to the general physician because of the good clinical illustrations. It is not a textbook for undergraduates since the subject matter does not cover the major psychiatric entities. It does not go beyond the standard knowledge of the trained psychiatrist and would little serve his purposes.

Eugene A. Hargrove, North Carolina

Principles of Human Physiology

By Sir Charles Lovatt Evans, Len and Feibiger, Philadelphia, 1954. 12th edition. 1233 pp.

Nearly all chapters of the text have been affected by this commendable revision. Chapter numbering and titling are identical with those of the previous (1952) edition. While there are no new chapters, the additions and deletions have resulted in a book longer by eighteen pages which is much less "patchy, superficial and out of date", the quoted phrase being from the author's prefatory comments in the previous edition. The book continues to present the field of human physiology in a manner in which the author can justly take pride.

Among the most noticeable of the changes has been elimination of all fine print from the running text of Book IV "The Supplying of Information—The Special Senses" (revised by H. Hartridge). The descriptive anatomy as well as the entire section "Physical Properties of Light" formerly thus presented has been omitted. Other fine print has been changed to standard print with deletions, additions and changes.

Forty-one completely new figures have been added (according to the author, although the reviewer counted more). In addition some figures have been replaced by others which serve the purpose at least as well. Rearrangement of some with respect to location in the text has resulted in greater convenience to the reader. These additions together with deletions have resulted in a net increase of twelve figures.

The table of abbreviations preceding the text has been retained with the addition of "D.N.A." and "R.N.A." and re-

moval of "V.E.M." and "T.P." It may be considered a loss by some readers that the author has again chosen not to repeat his interesting comments in the tenth edition preface concerning such abbreviations. The table of units and constants has been retained.

The review finds the subject matter covered and some of the reference dates given in "Biophysical Principles" an interesting commentary on the age of biophysics.

The index has been enlarged by five pages and should be found more useful.

This book is well suited as a textbook for medical students and should continue to occupy a very prominent place among the major textbooks of human physiology.

Alfred H. Chambers, Vermont

An Atlas of Regional Dermatology

By Percival and Dodds. The Williams and Wilkins Co., Baltimore, Md., 1955. 264 pp. with index.

This atlas has some photographs which are clear and diagnostic and too many which are not characteristic and which are poorly colored with suggestion of retouching by an artist. Even the trained dermatologist would have difficulty in making the diagnosis given by the authors. In many instances, the term eczema is used where dermatitis would be more appropriate. Some statements like "a fungus infection of the neck is slowly eradicated through development of tissue immunity" are debatable. To prevent confusion with erysiploid of Rosenbach, the diagnosis of elephantiasis nostras would be better than erysiploid for chronic recurring eruption resulting in blockage of the cutaneous lymphatic plexus. Some other statements like TBC accompanying adenoma sebaceum, debility dermatitis gangrenosum and diabetes xanthoma tuberosum cause quandary and need of interpretation and elucidation. In an atlas of this type emphasis should be given to the clinical picture and not to the role of histopathology which usually can be relied upon anyway when in doubt.

The calling attention to the fact that eczema of the foot may resemble tinea is noteworthy, as is the space given to dermatitis herpetiformis, a frequent but often overlooked and forgotten disease.

In the opinion of the reviewer, the book would be confusing as a diagnostic aid to the average physician and will remain so until better pictures have been added and the poor ones replaced.

Sture A. M. Johnson, Wisconsin

Hunterdon Medical Center

Ray E. Trussell, M.D. Harvard University Press, 1956, 236 pp with index.

In the many years that have passed since the typical American doctor was riding from farm to farm in a buggy, the rural areas of this nation have fallen far behind the cities in the quality of medical care which is readily available to them. The progressing shift towards urbanization is establishing more firmly the existing tendency to concentrate high quality health facilities in cities. It is particularly refreshing, therefore, to read of an experiment in rural health by which a farming community provided itself with unusually good medical care and increasingly comprehensive health services. There are many features of the program described in Trussell's book which make stimulating reading. Examples are: the high degree of community participation in planning, financing and rendering service; the integration of both general practitioners and specialists into a smoothly functioning hospital staff; the cooperation with existing health agencies and development of county-wide preventive services; and the affiliation between this rural health unit and a university medical center.

To medical educators the most challenging parts of the book will probably be references to the training of medical students from three medical schools, internes and residents in a rural environment. In American medical education there are few places where doctors in training can obtain an understanding of rural life and psychology, and the ways in which the health needs of this 36 per cent of Americans can be met. There is recognized need for influencing doctors to settle in rural communities. If part of their training can be provided in surroundings which are as pleasant and as stimulating professionally as the Hunterdon Medical Center, the young doctor might be influenced, not only to settle in a rural area, but also to help organize similar services where he does settle.

The challenge of using rural health centers as teaching laboratories for medical students and internes applies particularly to state supported medical schools in predominantly farm states. They have direct responsibility for providing practicing doctors for the rural population. Rather than merely trying to copy the medical education provided by distinctly citified medical schools, they can pioneer in developing the type of physician needed to care for the aver-

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By Robert P. McCombs, M.D., Professor of Graduate Medicine, Tufts University School of Medicine. 659 pages; illus. \$10.00

Steegmann's Examination of The Nervous System

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By A. Theodore Steegmann, M.D., Professor of Medicine (Neurology), University of Kansas School of Medicine. Approx. 128 pages; illus. Approx. \$4.00

Lipman & Massie's Unipolar Electrocardiography

Ready in a New 3rd Edition—One of the most widely used texts in its field, this book has just been revised to match the progress in the study of heart disease. Most important addition is the expanded chapter on Congenital Heart Disease, featuring numerous ECG's of cardiovascular lesions amenable to surgery (both congenital and acquired). A new chapter offers valuable orientation material on vectorcardiography and vector electrocardiography.

By Bernard S. Lipman, M.D., Instructor in Medicine, Emory University, and Edward Massie, M.D., Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis. 359 pages; illus. Approx. \$7.00

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age citizen of their state. A medical school which based an important part of its clinical program on a chain of such health centers would make a significant contribution to world thinking on medical education.

Carl Taylor, *Harvard*

Pediatric X-Ray Diagnosis

By John Caffey, third edition, *The Year Book Publishers, Inc.*, Chicago, Illinois.

"Medical textbooks are fifteen years behind the times when they leave the press." This is a commonly expressed opinion of many a teacher and a painful experience of many a student. Whatever the merits of this truism, it has no applicability to John Caffey's *Pediatric Radiology*. The first two editions have played a significant role in the growth of interest and widespread dissemination of knowledge and pediatric roentgenology, which previously had been either poorly documented or limited to the experience of a few radiologists in pediatric medical centers.

Since its first appearance in 1945, this book has not only served as a good text, but also as a reference to students, radiologists, and practicing pediatricians. An important strength of the book is that it is written by a clinician who is an expert in radiology. Its organization and presentation of visual material is superb, making it one of the most readable radiological medical books available today.

In line with the tradition of the first two editions, the third edition has been expanded by "the addition of the new information, which has actually proven useful in the diagnosis and treatment of disease." Important new additions include: (1) expansion of the section on the GU tract, (2) greatly expanded section on the congenital dislocation of the hips with a discussion of the proposed theories including the so-called congenital acetabular dysplasias, (3) a completely new and expanded section on congenital heart disease, (4) aganglionic megacolon or Hirschsprung's disease, (5) Legge-Perthes coxa plana, (6) slipping of the upper femoral epiphyses, (7) further additions or new treatments of leptomeningeal cyst formation, familial fibrosis of the jaw, congenital absence of the main branch of the pulmonary artery, pulmonary findings in agammaglobulinemia, lower esophageal lesions, hypophosphatasia, etc. In brief, the content has been revised and added to presenting as far as is possible today 'our

present state of knowledge of the field.' As such, this text has been brought up to date in this rapidly moving specialty, and stands unrivalled in the field of pediatric radiology.

M. H. Wittenborg, *Harvard*

Technique of Operative Surgery

By Raimund Wittmoser, M.D., Vilhelm Mandrich, Vienna, Austria, 1956. 250 pp. with index.

This text is a manual of operative technique covering a limited field of adult gastric surgery and primarily the problem of peptic ulcer. It is a trilingual text, the original German having been translated into English and French in parallel columns appearing on the same page. The English translation is hard to read and is so lacking in clarity that in several spots the French translation is needed to understand the point in question. In addition to the strict technical matters, there has been included a generous amount of information concerning the history of gastric surgery.

The illustration are, in general, excellent and the legends provide good anatomical orientation.

The concepts of gastric physiology, upon which the book is based, seem unusually naive and are not strictly in keeping with the orthodox physiology taught in this country. There is, for instance, hardly any reference to the work of Dragstedt and his group on the role of the vagus in duodenal ulcer. Some of the other concepts are certainly unusual and are not completely documented.

The author's technique is slightly different from that usually seen in this country. This is, of course, not necessarily a criticism. One very valuable aspect of the technique is the detailed description of the use of local anesthesia in upper abdominal surgery, which the European school of surgery is much more apt to use than we are.

The chief merit of the volume would appear to me to be the presentation of the European approach to gastric surgery and the inclusion with it of considerable medical history. It is not a book that, in my mind, would be of value to most residents or practicing surgeons.

Wiley F. Barker, *U.C.L.A.*

Disturbances of Fluid Balance

By John H. Bland, M.D. W. B. Saunders Co., Philadelphia, 1956. 222 pp. with index.

This book demonstrates a thorough knowledge on the part of the author in regard to the clinical recognition and

management of various electrolyte and acid-base disturbances. However, the book is primarily designed for the practitioner of medicine rather than for the research worker. The latter fact constitutes somewhat of a drawback to the work in that the author is somewhat torn between presenting a scientific piece of work and that of simplifying the material to the point where it might be readily understandable to a second year medical student. This is reflected particularly in the figures which range from complicated ones of the Gamble and Darrow-Yannet diagram to cartoons.

The author makes a better point when he utilizes the scientific approach rather than the highly diagrammatic form. This dilemma is not only evident in figures but is also noted by such phrases as "... sea water is practically all water and water is such wonderful, indispensable stuff for animals." If these points are overlooked the book is basically sound and should provide a very ready reference book for physicians who desire a pathological and physiological approach in the recognition and treatment of disease entities in these categories.

Archer P. Crosley Jr., Wisconsin

Books and Pamphlets Received

*(As space permits, those with the greatest interest
to our readers will be reviewed)*

Clinical Urology

G. S. Iowlsley, M.D. and T. J. Kirwin, M.D.,

The Williams & Wilkins Company, Baltimore, 1956, 985 pp. with index.

Electrodiagnosis and Electromyography

Edited by Sidney Licht, Elizabeth Licht, Publisher, New Haven, Connecticut, 1956, 272 pp. with index.

Diseases of the Skin

Richard L. Sutton, Jr., M.D., The C. V. Mosby Co., St. Louis, 1956, 1478 pp. with index.

Endogenous Uveitis

Alan C. Woods, M.D., The Williams & Wilkins Co., Baltimore, 1956, 303 pp. with index.

Textbook of Urology

Victor F. Marshall, M.D., A Hoeber-Harper Book, New York, 1956, 268 pp. with index.

Anatomy for Surgeons

Volume 2, Thorax, Abdomen and Pelvis. By Henry Hollinshead, Ph.D., A Hoeber-Harper Book, New York, 1956, 934 pp. with index.

Textbook of Pathology

E. T. Bell, M.D., Lea & Febiger, Philadelphia, 1956, 1028 pp. with index.

On the Early Development of Mind

Edward Glover, M.D., International Universities Press, Inc., New York, 1956, 483 pp. with index.

Diseases of the Nervous System

Sir Russell Brain, Oxford University Press, London, New York, 1956, 996 pp. with index.

Among W&W textbooks...

BASIC SCIENCES

An Atlas of Anatomy, 4th ed.

By J. C. Boileau Grant, F.R.C.S.
577 pp., 714 figs. (1956), \$15.00

A Method of Anatomy, 5th ed.

By J. C. Boileau Grant, F.R.C.S.
874 pp., 862 figs. (1952), \$9.00

Human Neuroanatomy, 3rd ed.

By Oliver S. Strong and Adolph Elwyn
488 pp., 357 figs. (1953), \$7.50

Bailey's Textbook of Histology, 13th ed.

Edited by Philip E. Smith, Ph.D., and
Wilfred C. Copenhaver, Ph.D.
793 pp., 475 figs., 31 in color (1953), \$9.00

Human Embryology, 2nd ed.

By W. J. Hamilton, M.D., J. D. Boyd, M.D.,
and W. H. Mossman, Ph.D.
439 pp., 433 figs., 105 in color (1952), \$9.00

Basic Bacteriology

By Carl Lamanna, Ph.D., and
M. Frank Mallette, Ph.D.
697 pp., 100 figs. (1953), \$10.00

Topley and Wilson's Principles of Bacteriology and Immunity, 4th ed.

Edited by G. S. Wilson, M.D. and
A. A. Miles, M.D.
2 vols., 2436 pp., 303 figs. (1955), \$24.50

Biochemistry and Human

Metabolism, 2nd ed.

By Burnham S. Walker, M.D., Ph.D.,
William C. Boyd, Ph.D., and
Isaac Asimov, Ph.D.
1006 pp., 30 figs. (1954), \$10.00

Pharmacologic Principles of

Medical Practice, 3rd ed.

By John C. Krantz, Jr., Ph.D., and
C. Jelleff Carr, Ph.D.
1204 pp., 83 figs., 4 color plates
(1954), \$12.00

Physiological Basis of Medical

Practice, 6th ed.

By Charles H. Best, M.D. and
Norman B. Taylor, M.D.
1370 pp., 588 figs., 4 color plates
(1955), \$12.00

CLINICAL STUDIES

Synopsis of Anesthesia, 3rd ed.

By J. Alfred Lee, M.R.C.S.
490 pp., 72 figs. (1954), \$5.00

Textbook of Clinical Pathology, 5th ed.

Edited by Seward E. Miller, M.D.
1232 pp., 203 figs., 44 plates,
34 in color (1955), \$11.00

French's Index of Differential Diagnosis, 7th ed.

Edited by Arthur H. Douthwaite, M.D.
1046 pp., 731 figs., 200 in color
(1954), \$20.00

Diseases of the Nervous System, 8th ed.

By F. M. R. Walshe, M.D.
376 pp., 48 figs. (1955), \$7.00

Obstetrical Practice, 6th ed.

By Alfred C. Beck, M.D. and
Alexander H. Rosenthal, M.D.
1080 pp., 969 figs. (1955), \$12.00

Textbook of Gynecology

By John I. Brewer, M.D.
550 pp., 146 figs. (1953), \$10.00

Textbook of Gynecology, 5th ed.

By Emil Novak, M.D. and
Edmund R. Novak, M.D.
850 pp., 543 figs., 44 in color (1956), \$11.00

May's Manual of Diseases of the Eye, 21st ed.

Edited by Charles A. Perera, M.D.
520 pp., 378 figs., 31 in color (1953), \$6.00

Demonstrations of Physical Signs in Clinical Surgery, 12th ed.

By Hamilton Bailey, F.R.C.S.
468 pp., 681 figs., 158 in color (1954), \$8.00

Essential Urology, 3rd ed.

By Fletcher H. Colby, M.D.
675 pp., 358 figs. (1956), \$8.00

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Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 185 N. Wabash Ave., Chicago 1, Ill., not later than the 10th of the month which precedes the month in which the listings will appear.

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• **INTERIST:** 35, present medical school faculty member. Rounded clinical and teaching experience. Extensive original investigation, publications in metabolism and related fields. Radioisotope techniques. Board certified. Desires full-time teaching position with opportunity for investigative contribution. Address: A-229.

• **ANESTHESIOLOGIST:** Foreign graduate; female; trained in institution with medical school connection. Seeks position with teaching institution or similar. Address: A-230.

• **PHARMACOLOGIST:** Ph.D. 29, atomic research, publications, some teaching. Entering junior year of medical school. Desires part-time academic post to complete medical program. Address: A-321.

• **PHYSIOLOGIST-ZOOLOGIST:** Ph.D. 34. Training and interest in endocrinology and cell physiology. Presently engaged as research associate in biochemistry. Desires academic and/or research position. Address: A-232.

• **BIOCHEMIST:** Ph.D. Now assistant professor of biochemistry at medical school. Fifteen years' teaching experience, over 40 publications in the field of enzymes, proteins, lipids and biochemistry of cancer. Seeks position in institution with good research facilities and appropriate remuneration. Excellent references supplied on request. No regional preferences. Address: A-235.

• **INTERNIST-PHYSIOLOGIST:** 34. Interests in cardiovascular research and teaching. Experienced in cardiac catheterization. Presently full time faculty appointment. Desires academic situation offering future and opportunities in field of stated interest. Address: A-236.

• **MICROBIOLOGIST:** Ph.D. 31, married. Five years teaching experience in general and medical bacteriology, immunology, mycology, and virology. Total of six years experience in virus and cancer research. Presently engaged in full-time virus research. Desires faculty appointment (asst. prof.) with teaching and research opportunities. Address: A-237.

• **INTERNIST:** 39. Especially interested in metabolism. Previous experience with isotopes. Certified by American Board in internal medicine. Fellow of American College of Physicians. Would be interested in heading section or department in geographical full-time teaching position with a medical school. Assistant professor of medicine past two years. Outstanding record including numerous publications in the past. Address: A-238.

• **Obstetrician-Gynecologist:** 38, F.R.C.S. (C). Canadian. Married. Board eligible. Presently holding teaching fellowship in Canadian university, wishes part or full time teaching appointment in American university. Address: A-239.

• **VETERINARY PATHOLOGIST-BACTERIOLOGIST:** D. V.M., Ph.D., 37, male, married. Background in comparative pathology, infectious diseases and mycology. Nearly 8 years research experience and part time teaching. Assistant professor, member of a number of scientific organizations. Publications. Desires position primarily research with minimum of teaching. Would consider medical school appointment with opportunity to complete requirements for M.D. degree. Address: A-240.

• **PUBLIC RELATIONS DIRECTOR:** Top medical center experience. Seeks growth opportunity in medical administration. Address: A-241.

• **OPHTHALMOLOGIST:** 32. Three years approved residency in ophthalmology from a large teaching general hospital. Desires teaching or research fellowship in ophthalmology at a medical-hospital institution or preceptorship under ophthalmologist. Address: A-242.

• **BIOCHEMIST:** Ph.D., Columbia University, 1940. Good background in teaching and research. Associate professor of biochemistry; numerous publications on chemistry and metabolism of steroid hormones. Presently completing two year visit in English medical college. Available USA, fall, 1956. Address: A-243.

• **PHYSIOLOGIST-PHARMACOLOGIST:** Ph.D. 38, married. Metropolitan N. Y. area only. Full or part-time teaching and/or research position in medical or dental school or membership in hospital research team. Seven years teaching undergraduates biology, chemistry, zoology, physiology, anatomy; dental students physiology, pharmacology; medical students pharmacology. Faculty member of eastern medical school. Four years in hospital research laboratories. Publications. Address: A-244.

• **MEDICAL WRITER:** Ph.D. in physiology with research experience and publications. Desires full or part-time work writing abstracts, editing manuscripts and assisting with medical publications. Address: A-245.

• **PHYSIOLOGIST-PHARMACOLOGIST:** Ph.D. Research experience. Publications. Desires opportunity to affiliate with laboratory doing research in endocrinology, reproduction or pharmacology. Interested in institution for which senior post-doctoral fellowship can be granted by National Science Foundation. Metropolitan N. Y. area only. Address: A-246.

• **MICROBIOLOGIST:** Ph.D., 34, male, married. Background in host-parasite relationship in infectious disease, radiation, microbiology. Three years research and part-time teaching experience. Desires position in teaching and research. Would consider medical school appointment with opportunity to complete requirements for M.D. degree. Address: A-248.

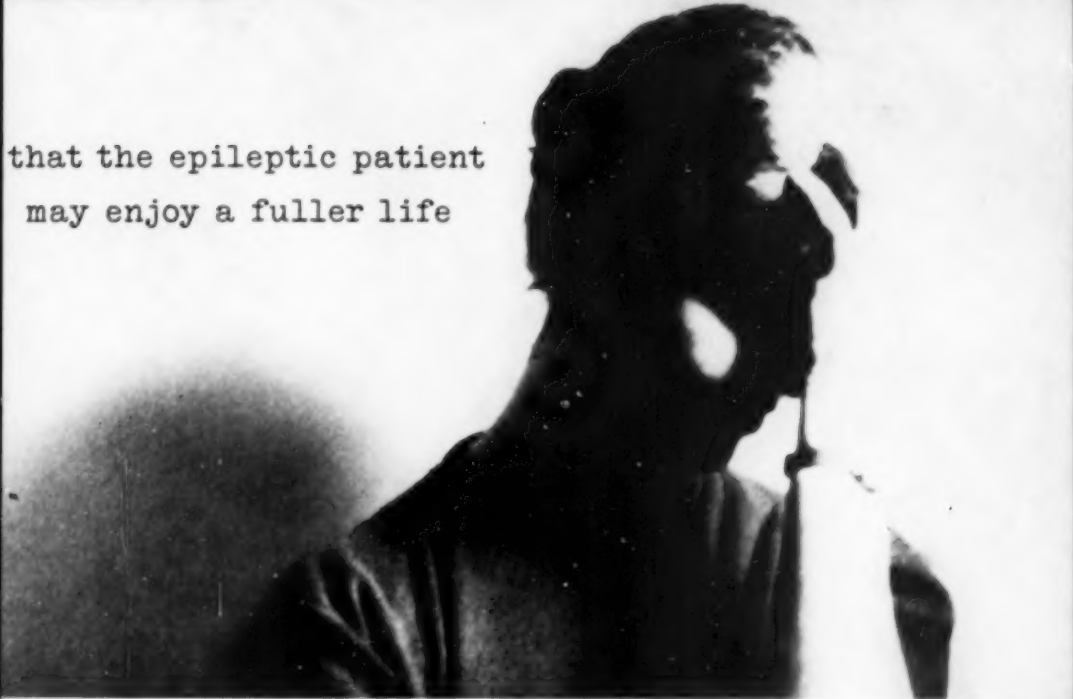
• **PHYSIOLOGIST-CYTOLOGIST:** Ph.D. male, 30, married. Background in mammalian physiology, zoology and anatomy. Desires opportunity for research with or without teaching, in the East. Interest and experience in invertebrate-vertebrate material, problems in nuclear and cytoplasmic inter-relationships, cytochemical studies on nuclear changes during tumor formation using cytospectrophotometry, electron microscopy. Some teaching experience in mammalian physiology. Address: A-249.

• **PHARMACOLOGIST:** 28. Will complete Ph.D. work by October 1956. Have completed 2½ years medical school and passed first half state and national board examinations. Experience in teaching in pharmacology laboratory. Research in endocrinology. Desires part time teaching or research position in a medical school with opportunity to complete work for M.D. degree. Address: A-250.

• **INTERNIST-CARDIOLOGIST:** 37. Seeks change of location. Presently director of cardiopulmonary laboratory of large university hospital. Have active research program. Also direct cardiac clinic and teaching program. F.A.C.P. Certified in sub-specialty. Interested in teaching, administration, research. Address: A-251.

• **PEDIATRICS INSTRUCTOR:** 64. Graduated from Russian medical school, have 32 years teaching experience in Russian and Austrian medical schools, hospitals as associate professor, later head of medical staff. Address: A-252.

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